

2009
CONSTRUCTION STANDARDS
AND
DETAILS



CITY OF CONCORD
NEW HAMPSHIRE

COMMUNITY DEVELOPMENT DEPARTMENT
ENGINEERING SERVICES DIVISION
CITY OF CONCORD, NEW HAMPSHIRE

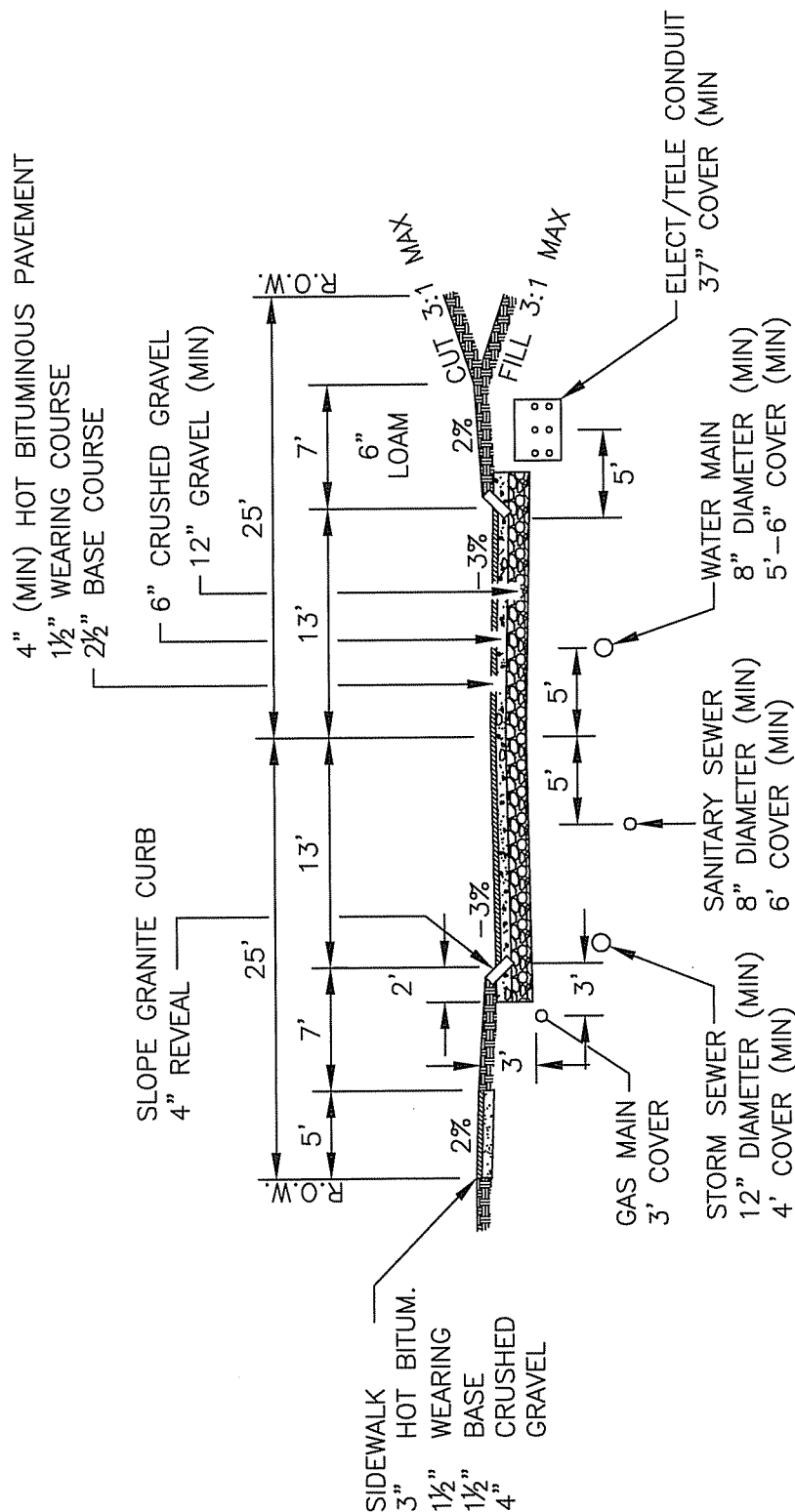
CONSTRUCTION STANDARDS

THESE ARE TYPICAL ENGINEERING DRAWINGS
AND ARE NOT INTENDED FOR A SPECIFIC
APPLICATION. THE CITY MAKES NO
REPRESENTATION OR GUARANTEE OF THEIR
SUITABILITY FOR USE. USERS OTHER THAN
THE CITY, DO SO AT THEIR OWN RISK.

City of Concord Construction Standards and Details

- C-1 Vertical Granite Curb
- C-2 Sloped Granite Curb
- C-3 Slope to Vertical Granite Curb Transition
- CR-1 Detectable Warning Panel Details
- CR-2 Sidewalk Ramp General Notes
- CR-3 Sidewalk Ramp Type 1
- CR-4 Sidewalk Ramp Type 2
- CR-5 Sidewalk Ramp Type 3
- CR-6 Sidewalk Ramp Type 4
- CR-7 Sidewalk Ramp Type 5
- CR-8 Sidewalk Ramp Type 6, Examples 1 & 2
- CR-9 Sidewalk Ramp Type 6, Examples 3 & 4
- CR-10 Sidewalk Ramp Type 6, Examples 5 and Type 6 Sections
- CR-11 Railroad Crossing
- CR-12 Median Island Cut Through
- CR-13 Ramps at Wide Median Islands
- D-1 Urban Drive with Vertical Granite Curb, Grass Panel Width <5'
- D-2 Urban Drive with Vertical Granite Curb, Grass Panel Between 5' and 8' Wide
- D-3 Urban Drive with Vertical Granite Curb, Grass Panel Width ≥8'
- D-4 Urban Drive with Vertical Granite Curb, w/o Sidewalk
- D-5 Urban Drive with Sloped Granite Curb, Grass Panel Width <6'
- D-6 Urban Drive with Sloped Granite Curb, Grass Panel ≥6'
- D-7 Urban Drive with Sloped Granite Curb, w/o Sidewalk
- D-8 Major Commercial Drive
- D-9 Rural Residential Drive
- L-1 Deciduous Tree Planting
- L-2 Deciduous Tree – Guying & Staking
- L-3 Evergreen Planting
- L-4 Shrub Planting
- L-5 Groundcover Planting
- L-6 Tree Planting on Slope
- M-1 Road Sign Post and Sleeve – Urban
- M-2 Road Sign Post and Sleeve - Rural
- M-3 Pavement Markings
- M-4 Parking Space Layout
- M-5 Accessible Parking Space Pavement Marking
- M-6 Right-of-Way Bound
- M-7 Trail Construction
- M-8 Mailbox Support
- M-9 Single Mailbox Support
- M-10 Multiple Mailbox Support
- M-11 Cantilever Type Mailbox Single Support
- M-12 Single Dumpster Pad
- M-13 Multiple Dumpster Pad
- M-14 Monitoring Well
- R-1 Minor Street: Lot Size 40,000sf or more

| | |
|-------|---|
| R-2 | Minor Street: Lot Size 40,000sf or less |
| R-3 | Collector Street |
| R-4 | Urban Intersection |
| R-5 | Rural Intersection |
| R-6 | Roadway Termination: Cul-de-sac |
| R-7 | Temporary Roadway Termination: Hammerhead |
| R-8 | Pavement Overlay Transition |
| R-9 | Sawcut Requirements |
| R-10 | Concrete Trench Patch |
| R-11 | Underdrain Trench Sections |
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| SD-2 | Drain Manhole |
| SD-3 | Storm Drain Brick Shelf Construction |
| SD-4 | Adjusting Frames to Grade |
| SD-5 | Catch Basin / Drop Inlet |
| SD-6 | Hydraulic Flow Chart |
| SD-7 | Double Frame and Grate Catch Basin |
| SD-8 | Oil / Sediment Control Barrier |
| SD-9 | Standard Headwall |
| SD-10 | Drywell |
| SM-1 | Sanitary Sewer & Storm Drain Pipe Installation |
| SM-2 | Sewer Manhole |
| SM-3 | Sanitary Brick Shelf Construction |
| SM-4 | Adjusting Frames to Grade |
| SM-5 | Sewer Main Inside Drop Manhole |
| SM-6 | Sewer Main Outside Drop Manhole |
| SM-7 | Hydraulic Flow Chart |
| SM-8 | Limit of Sags in PVC Sanitary Sewer Pipe |
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| SS-2 | Sewer Service Connection / Inside Drop Manhole |
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| SS-4 | Cleanout Covers, 4" or 6" |
| SS-5 | Force Main Connection |
| SS-6 | Force Main Testing Requirements |
| SS-7 | 3000 Gallon Grease Trap |
| SS-8 | Oil/Water Interceptor Structure |
| U-1 | Typical Utility Conduit Installation |
| W-1 | Water Service and Main Installation |
| W-2 | Fire Hydrant |
| W-3 | Hydrant Painting and Marker Flags |
| W-4 | Single Family Meter Installation |
| W-5 | Residential Meter Installation with Irrigation |
| W-6 | Meter Installation with Irrigation and Fire Suppression |
| W-7 | New Condominium Dual Residential Meter Installation |
| W-8 | Condo Conversion Dual Residential Meter Installation |
| W-9 | Installation of Water Meters |
| W-10 | Water Service through Foundation |
| W-11 | Air Release Valve (for testing purposes only) |



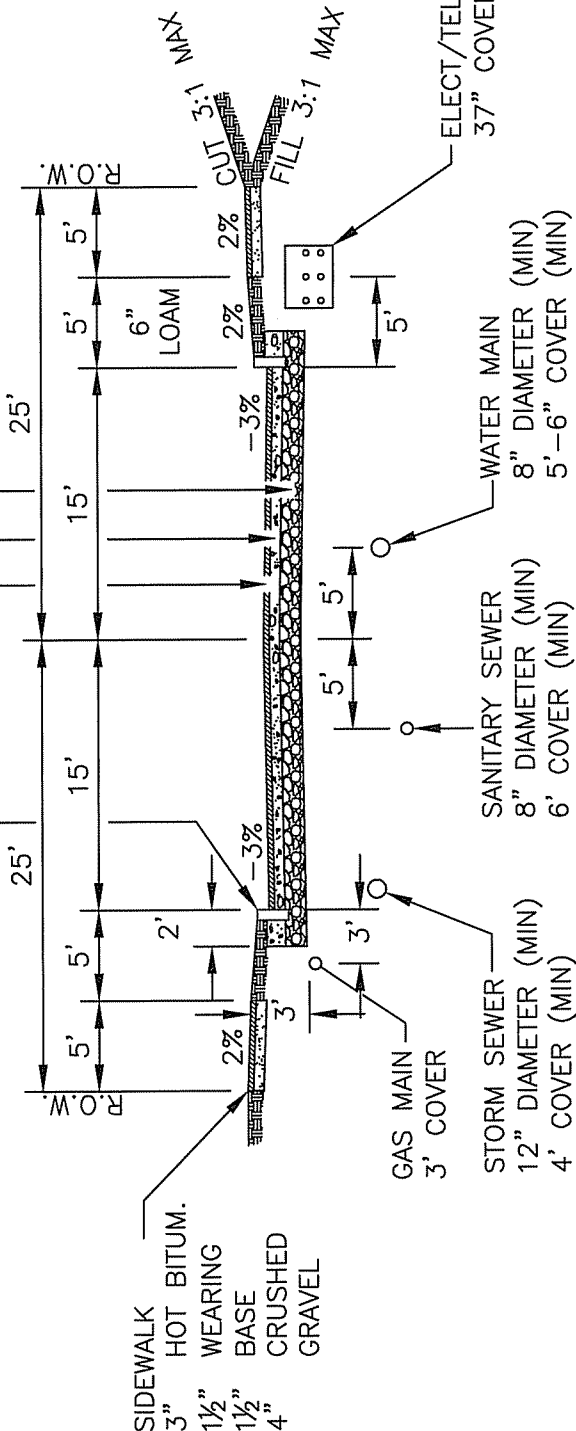
HIGH OR MEDIUM DENSITY DISTRICTS
(LOT SIZE 40,000 S.F. OR MORE)

| NO. | REVISION | DATE | City of Concord Engineering Services Division | SECTION: | SITE/STREET |
|--------------|----------|------|--|-------------|-------------|
| - | - | - | MINOR STREET Lot size 40,000 sf or more | DRAWING NO. | R-1 |
| - | - | - | | DATE: | 12/08 |
| - | - | - | | PAGE: | 1 |
| APPROVED BY: | | | | | |

4" (MIN) HOT BITUMINOUS PAVEMENT
1½" WEARING COURSE
2½" BASE COURSE

VERTICAL GRANITE CURB
7" REVEAL

6" CRUSHED GRAVEL
12" GRAVEL (MIN)



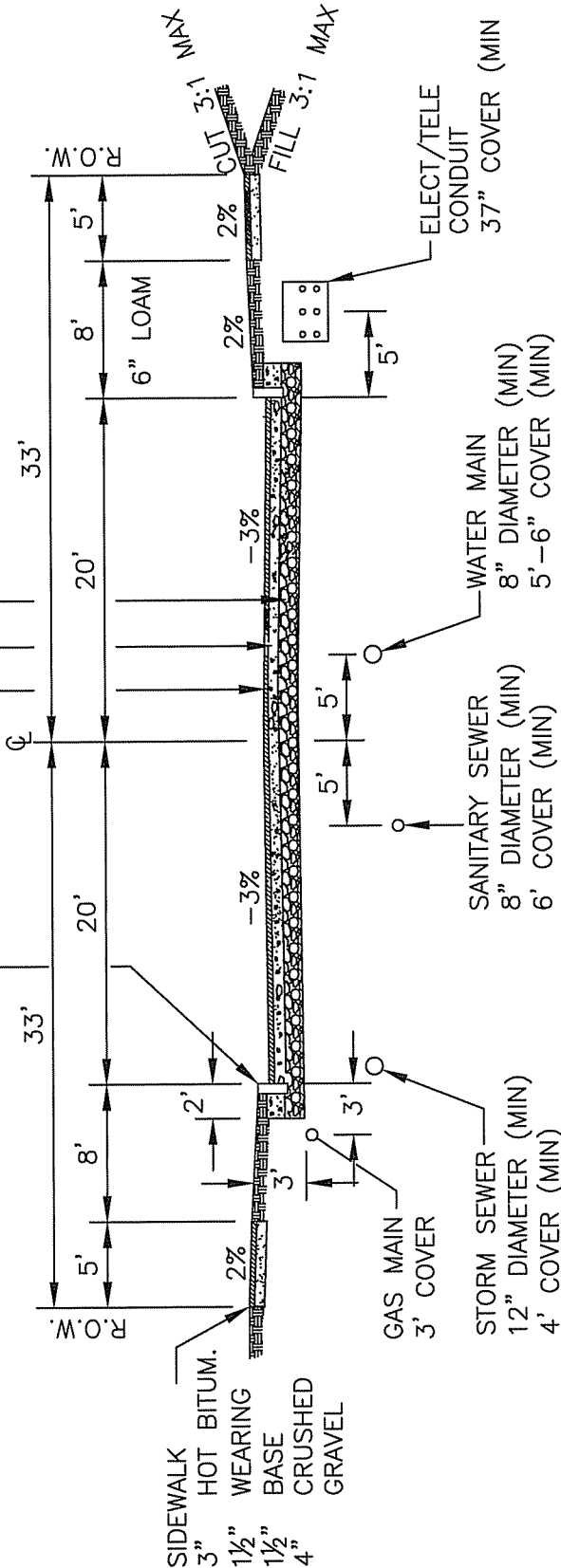
HIGH OR MEDIUM DENSITY DISTRICTS
(LOT SIZE 40,000 S.F. OR LESS)

| NO. | REVISION | DATE | City of Concord Engineering Services Division | | SECTION: SITE/STREET | |
|--------------|----------|------|--|--|----------------------|-------|
| - | - | - | MINOR STREET Lot size 40,000 sf or less | | DRAWING NO. | R-2 |
| - | - | - | | | DATE: | 12/08 |
| - | - | - | | | PAGE: | 1 |
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5"(MIN) HOT BITUMINOUS PAVEMENT
1½" WEARING COURSE
3½" BASE COURSE

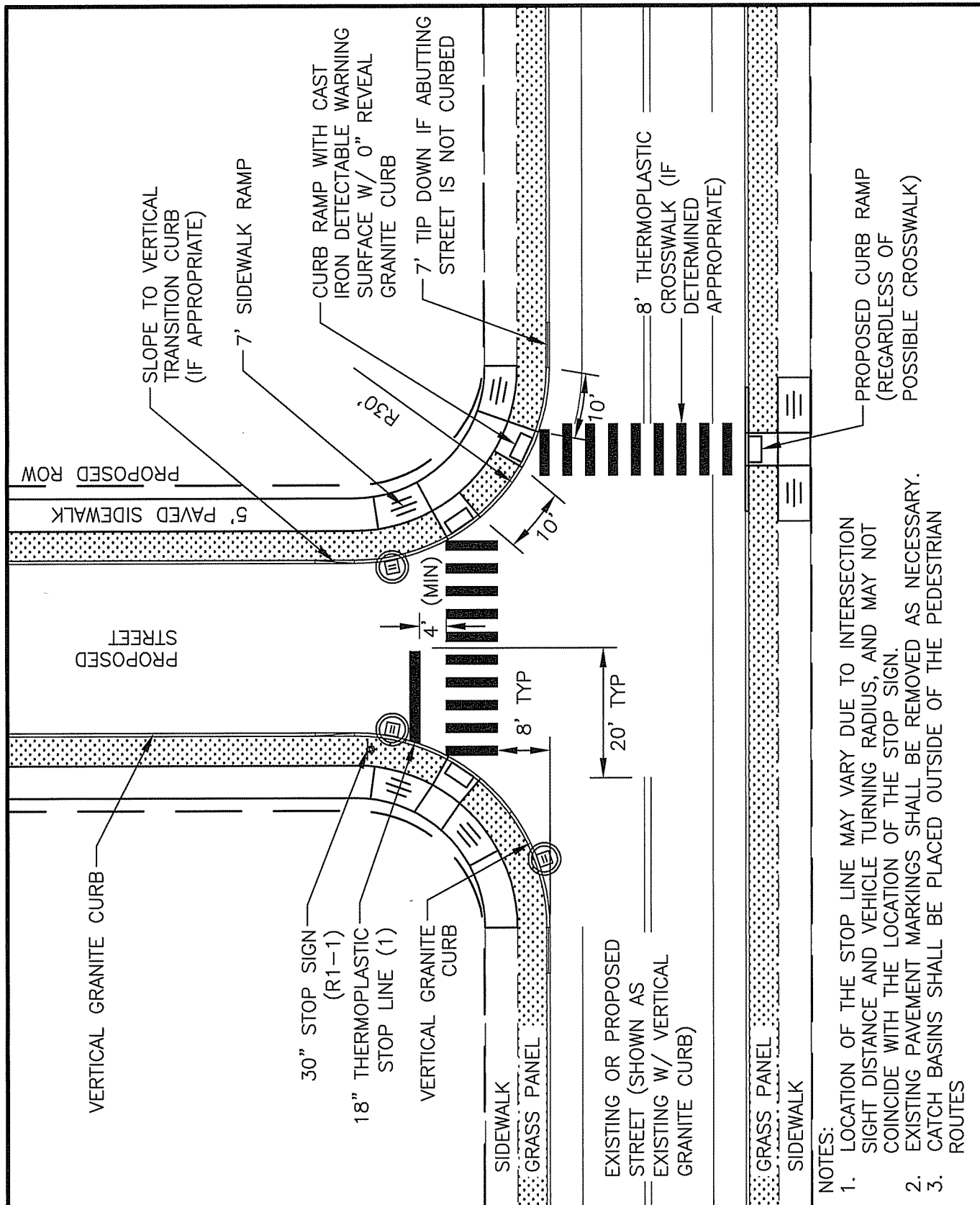
VERTICAL GRANITE
CURB 7" REVEAL

6" CRUSHED GRAVEL
12" GRAVEL (MIN)



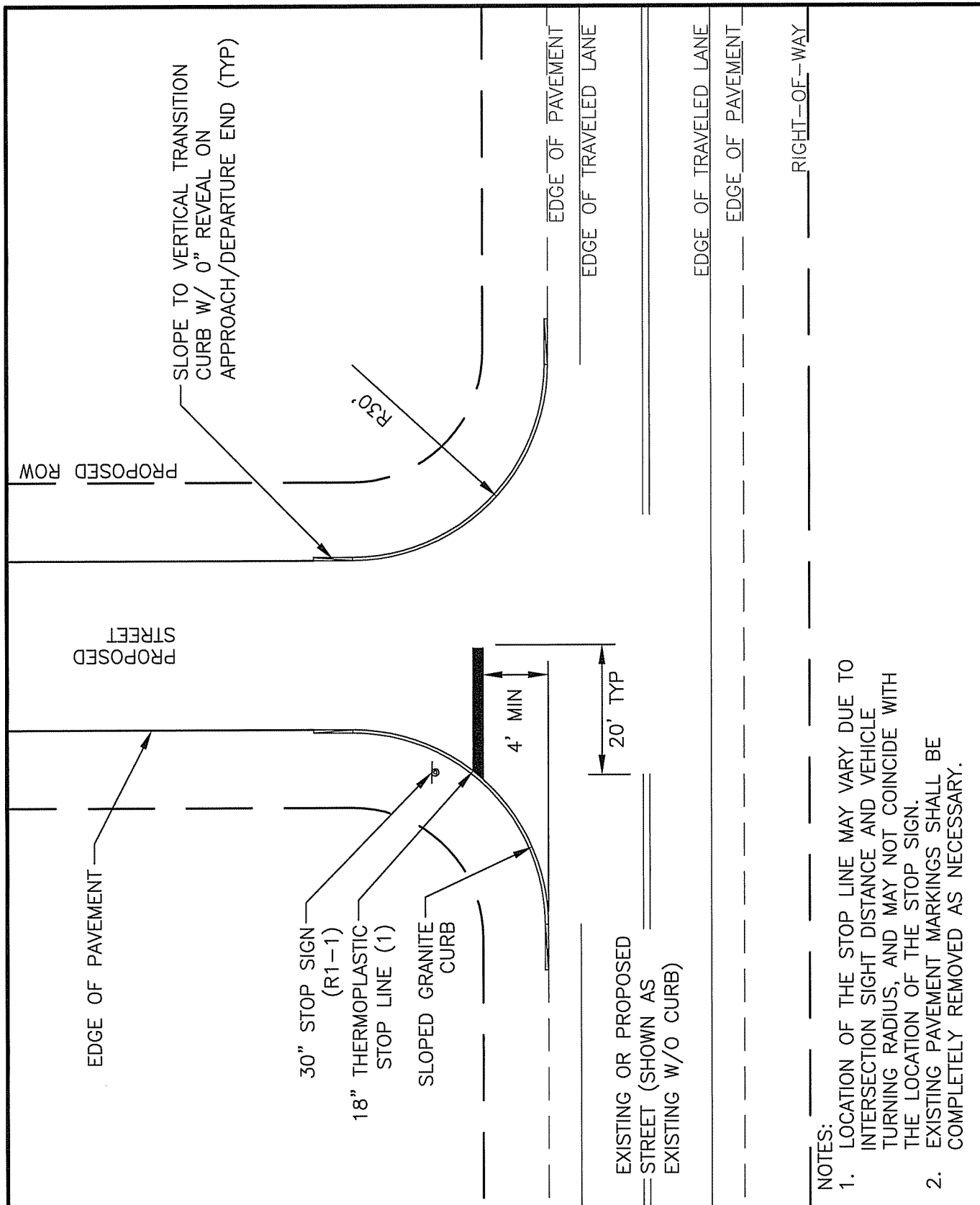
HIGH OR MEDIUM DENSITY DISTRICTS
(LOT SIZE 40,000 S.F. OR LESS)

| NO. | REVISION | DATE | City of Concord Engineering Services Division | | SECTION: SITE/STREET | |
|--------------|----------|------|---|--|----------------------|-------|
| - | - | - | COLLECTOR STREET | | DRAWING NO. | R-3 |
| - | - | - | | | DATE: | 12/08 |
| - | - | - | | | PAGE: | 1 |
| APPROVED BY: | | | | | | |



- NOTES:
1. LOCATION OF THE STOP LINE MAY VARY DUE TO INTERSECTION SIGHT DISTANCE AND VEHICLE TURNING RADIUS, AND MAY NOT COINCIDE WITH THE LOCATION OF THE STOP SIGN.
 2. EXISTING PAVEMENT MARKINGS SHALL BE REMOVED AS NECESSARY.
 3. CATCH BASINS SHALL BE PLACED OUTSIDE OF THE PEDESTRIAN ROUTES

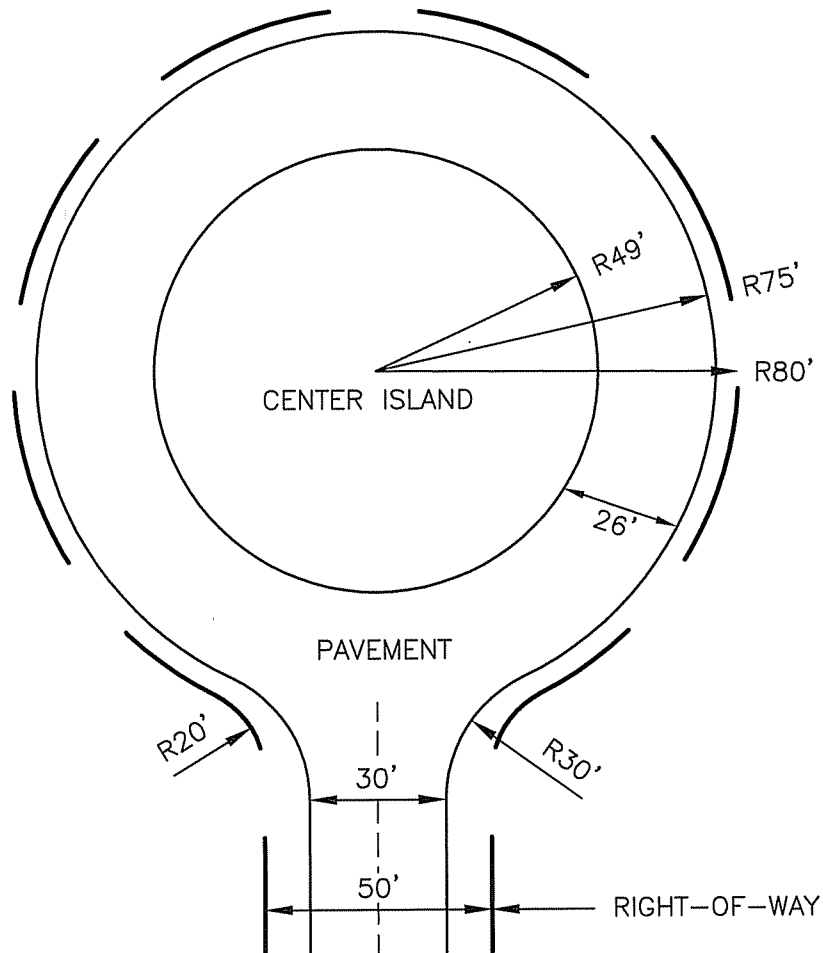
| NO. | REVISION | DATE | City of Concord Engineering Services Division | | SECTION: SITE/STREET | |
|--------------|----------|------|---|--|----------------------|-------|
| - | - | - | URBAN INTERSECTION | | DRAWING NO. | R-4 |
| - | - | - | | | DATE: | 12/08 |
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NOTES:

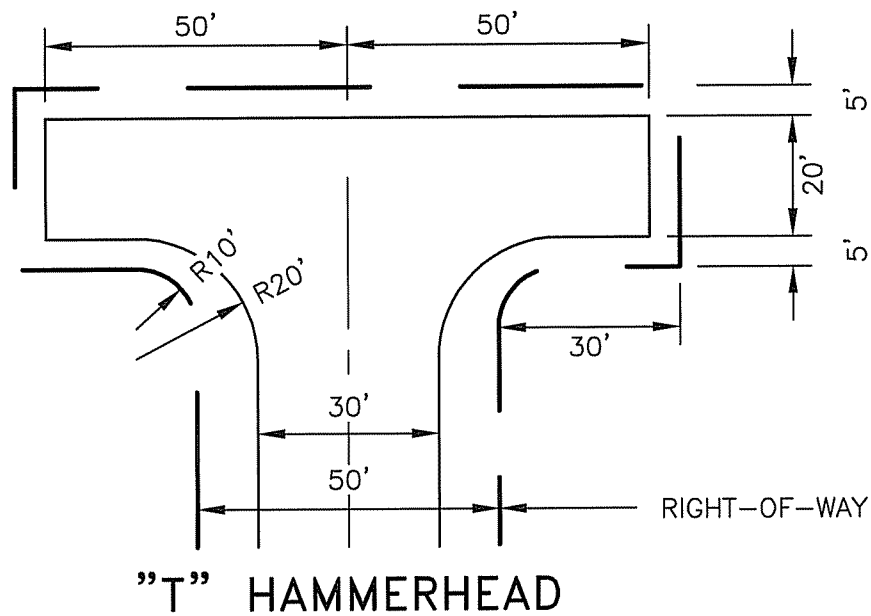
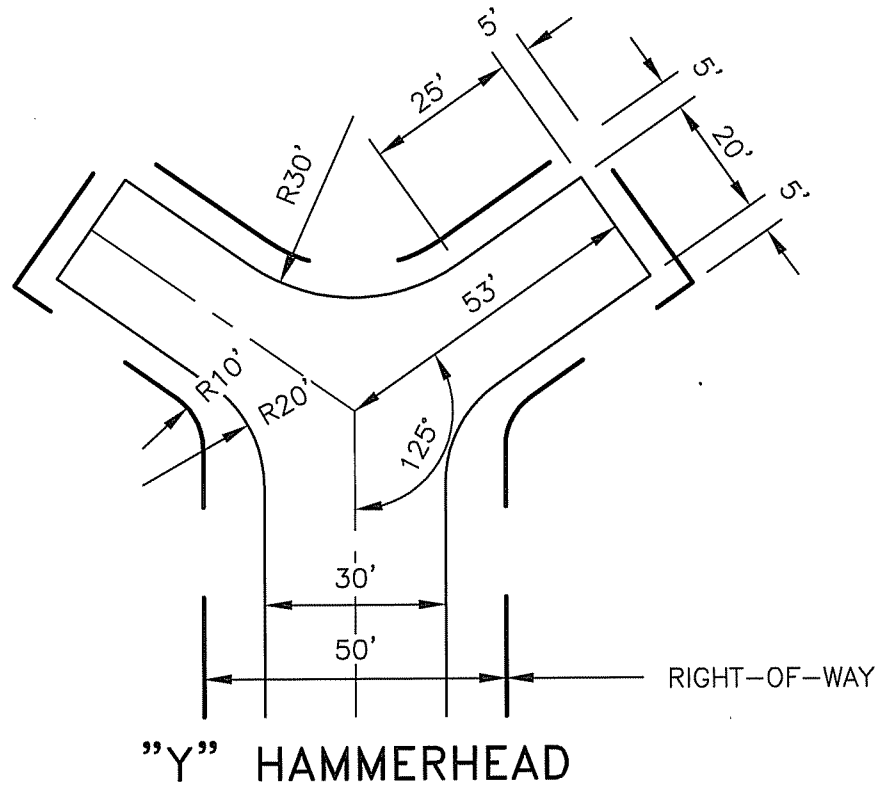
1. LOCATION OF THE STOP LINE MAY VARY DUE TO INTERSECTION SIGHT DISTANCE AND VEHICLE TURNING RADIUS, AND MAY NOT COINCIDE WITH THE LOCATION OF THE STOP SIGN.
2. EXISTING PAVEMENT MARKINGS SHALL BE COMPLETELY REMOVED AS NECESSARY.

| NO. | REVISION | DATE | City of Concord Engineering Services Division | | SECTION: SITE/STREET | |
|--------------|----------|------|---|--|----------------------|-------|
| - | - | - | RURAL INTERSECTION | | DRAWING NO. | R-5 |
| - | - | - | | | DATE: | 12/08 |
| - | - | - | | | PAGE: | - |
| APPROVED BY: | | | | | | |



CUL-DE-SAC

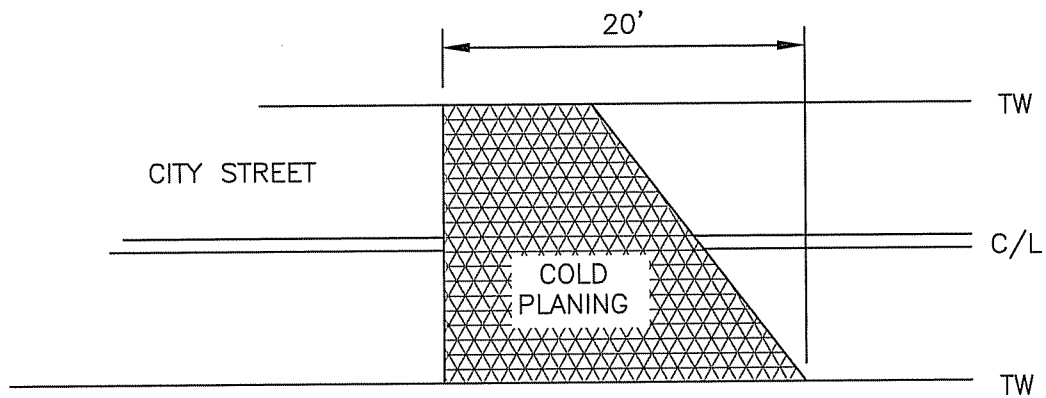
| NO. | REVISION | DATE | City of Concord Engineering Services Division | SECTION: SITE/STREET | |
|--------------|----------|------|---|----------------------|--|
| — | — | — | ROADWAY TERMINATION CUL—DE—SAC | DRAWING NO. R—6 | |
| — | — | — | | DATE: 12/08 PAGE: 1 | |
| — | — | — | | | |
| APPROVED BY: | | | | | |



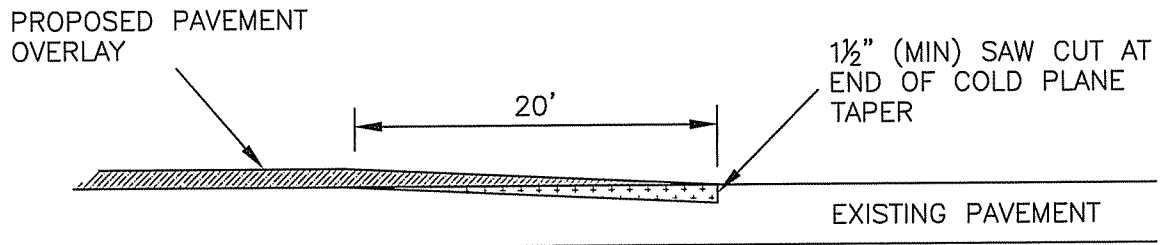
NOTE:

DRIVEWAYS SHOULD NOT BE LOCATED AT THE 20' WIDE ENDS OF THE HAMMERHEADS

| NO. | REVISION | DATE | City of Concord Engineering Services Division | SECTION: SITE/STREET | |
|--------------|----------|------|---|----------------------|-------|
| - | - | - | TEMPORARY ROADWAY TERMINATION | DRAWING NO. | R-7 |
| - | - | - | | DATE: | 12/08 |
| - | - | - | | PAGE: | 1 |
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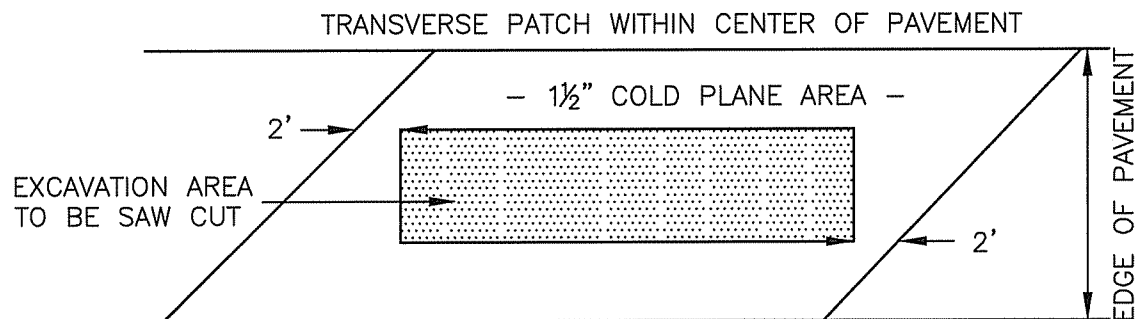
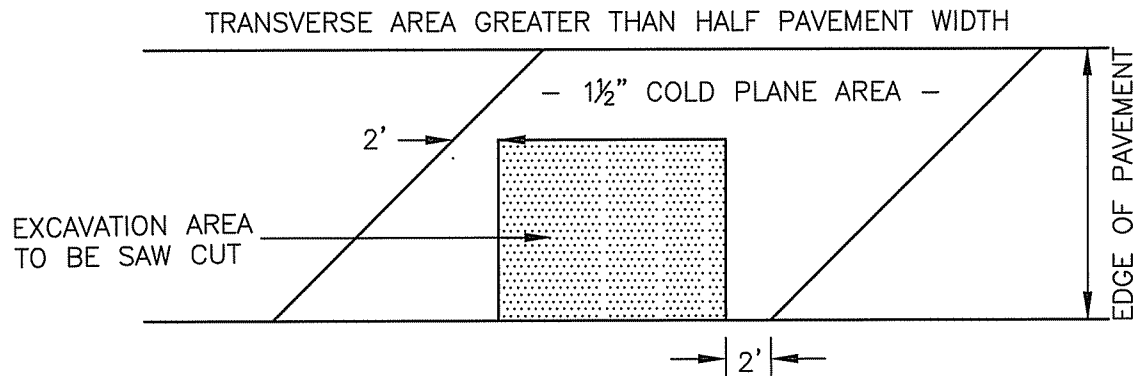
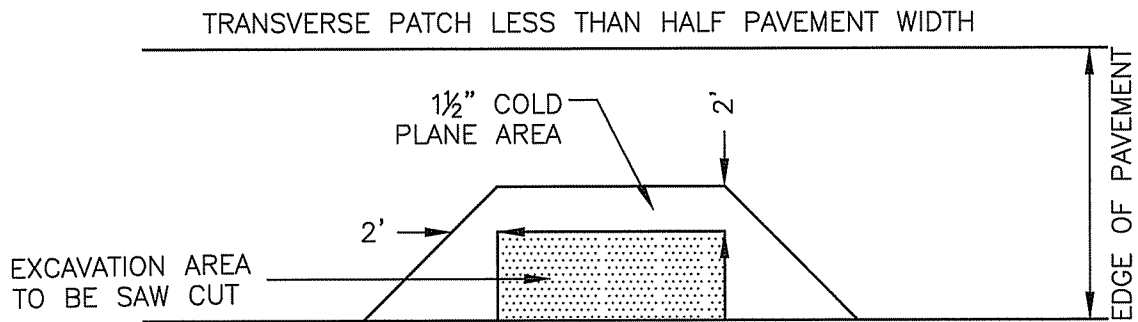
PLAN



EXISTING PAVEMENT SHALL BE COLD PLANED FOR A LENGTH OF 20' TAPERING FROM 0" TO 1½" MINIMUM DEPTH, THROUGHOUT THE ENTIRE WIDTH OF THE ROADWAY TO BE OVERLAID.

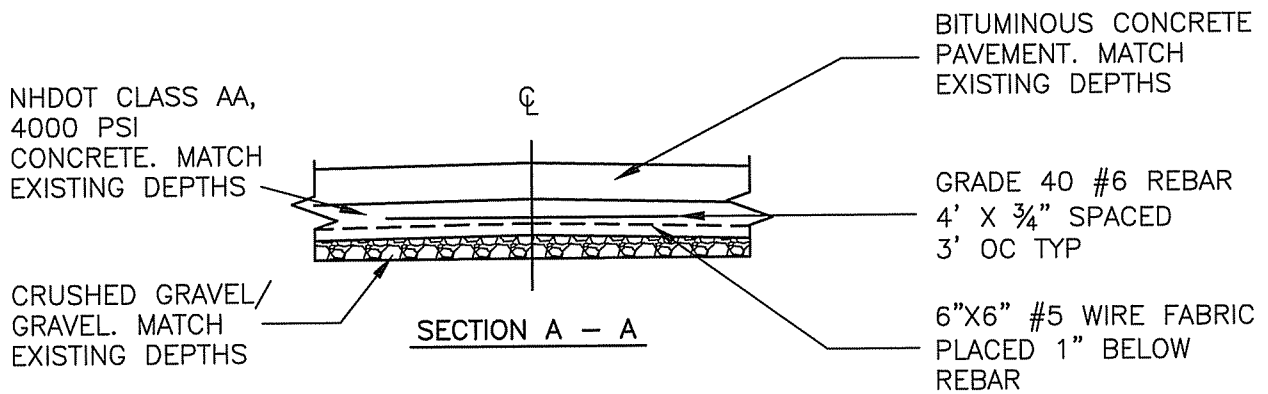
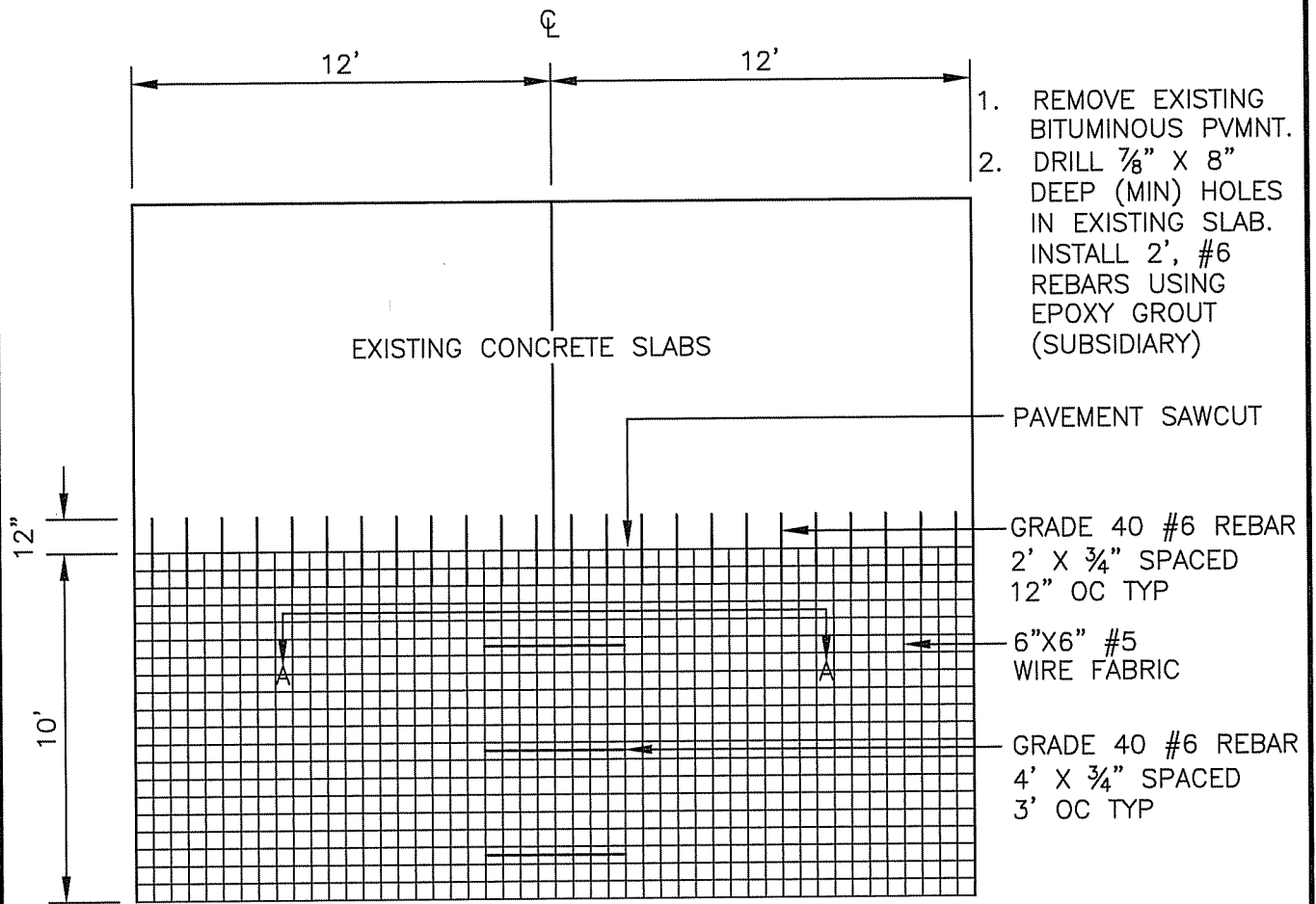
SECTION

| NO. | REVISION | DATE | City of Concord Engineering Services Division | SECTION: SITE/STREET | |
|--------------|----------|------|---|----------------------|-------|
| - | - | - | PAVEMENT OVERLAY TRANSITION | DRAWING NO. | R-8 |
| - | - | - | | DATE: | 12/08 |
| - | - | - | | PAGE: | 1 |
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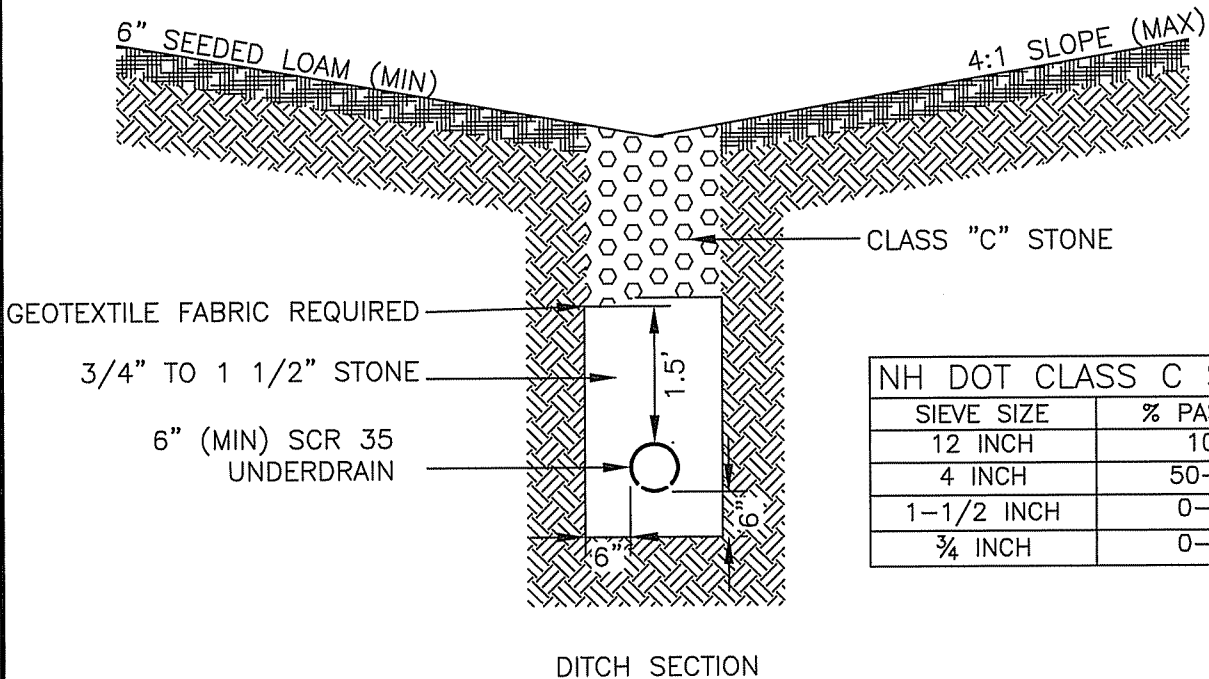
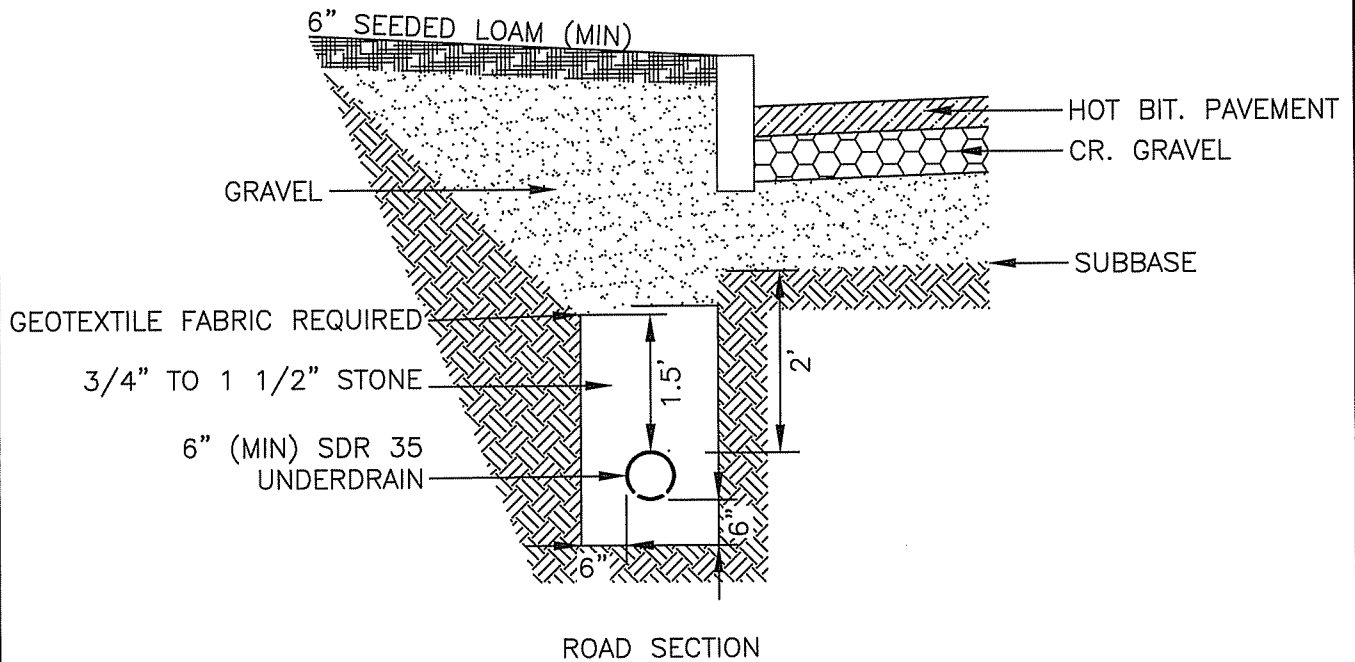


NOTE: WHERE LIMITS OF ADJACENT COLD PLANED AREAS ARE LESS THAN OR EQUAL TO 20', THE AREA BETWEEN SHALL BE COLD PLANED AND RESURFACED

| NO. | REVISION | DATE | City of Concord Engineering Services Division | SECTION: SITE/STREET | |
|--------------|----------|------|---|----------------------|--|
| — | — | — | SAWCUT REQUIREMENTS | DRAWING NO. R—9 | |
| — | — | — | | DATE: 12/08 | |
| — | — | — | | PAGE: 1 | |
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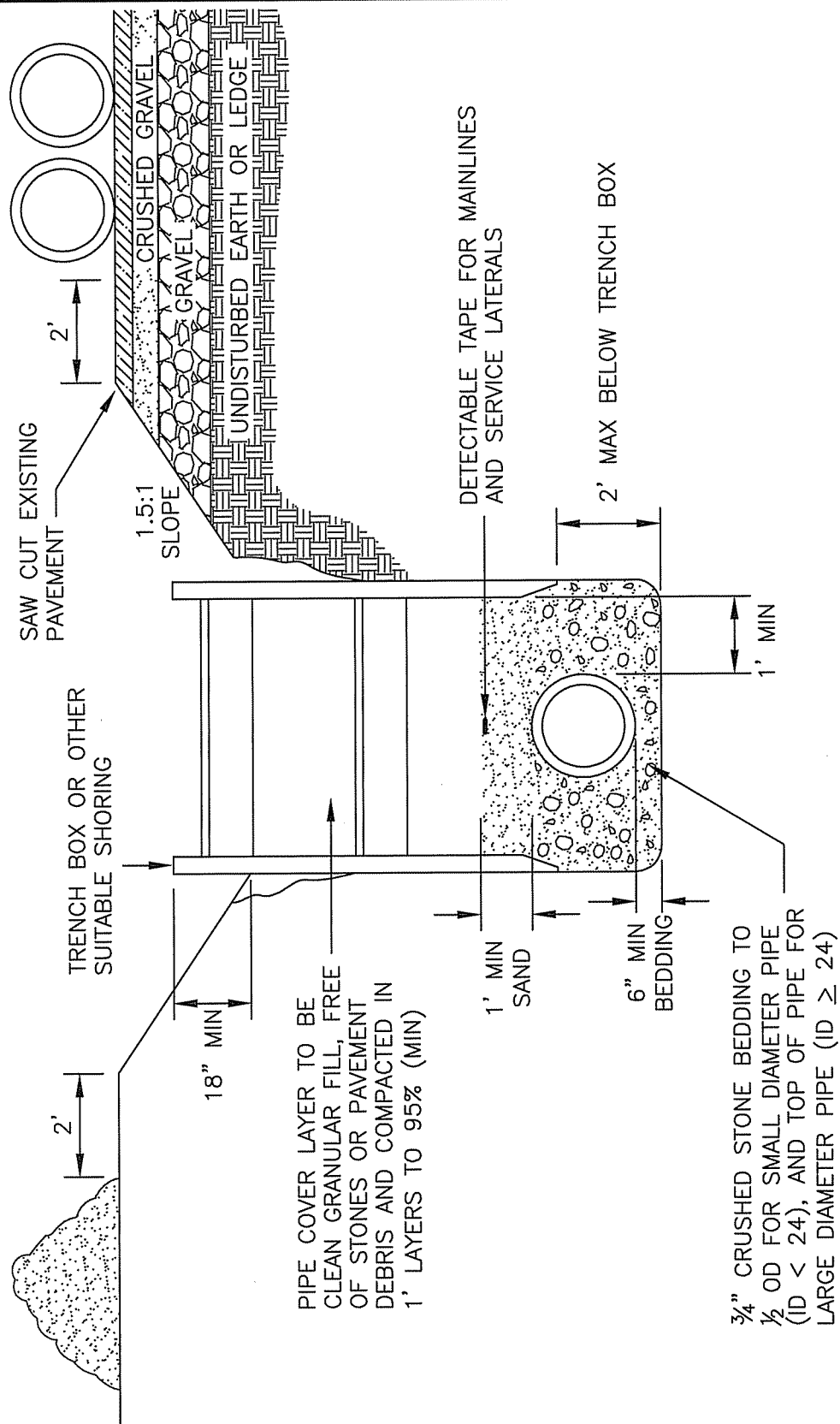
| NO. | REVISION | DATE | City of Concord Engineering Services Division | SECTION: SITE/STREET | |
|--------------|----------|------|---|----------------------|--|
| — | — | — | CONCRETE TRENCH PATCH | DRAWING NO. R-10 | |
| — | — | — | | DATE: 12/08 | |
| — | — | — | | PAGE: 1 | |
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| NH DOT CLASS C STONE | |
|----------------------|-----------|
| SIEVE SIZE | % PASSING |
| 12 INCH | 100 |
| 4 INCH | 50-90 |
| 1-1/2 INCH | 0-30 |
| 3/4 INCH | 0-10 |

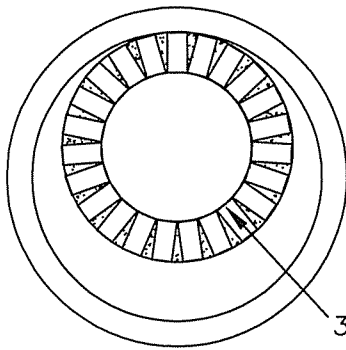
| NO. | REVISION | DATE | City of Concord Engineering Services Division | SECTION: SITE/STREET |
|--------------|----------|------|---|----------------------|
| - | - | - | UNDERDRAIN TRENCH SECTIONS | DRAWING NO. R-11 |
| - | - | - | | DATE: 12/08 |
| - | - | - | | PAGE: 1 |
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EXCAVATION TO BE CONSTRUCTED PER TYPICAL SECTION OR RECONSTRUCTED TO MATCH EXISTING PAVEMENT AND SUB-BASE DEPTHS



ALL EXCAVATIONS OVER 20' IN DEPTH MUST BE DESIGNED BY A REGISTERED PROFESSIONAL ENGINEER

| NO. | REVISION | DATE | City of Concord Engineering Services Division | | SECTION: SEWER/STORM | |
|--------------|----------|------|---|--|----------------------|-------|
| - | - | - | SANITARY SEWER & STORM DRAIN PIPE INSTALLATION | | DRAWING NO. | SD-1 |
| - | - | - | | | DATE: | 12/08 |
| - | - | - | | | PAGE: | 1 |
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MANHOLE BRICK MASONRY (NO CONCRETE GRADE RINGS)
30 INCH OPENING REQUIRED FOR ALL MANHOLE STRUCTURES

30" DIAMETER

6" CAST IRON FRAME SET
ON FULL BED OF MORTAR
AND SEALED WITH CEMENT

H-20 LOADING REQUIRED

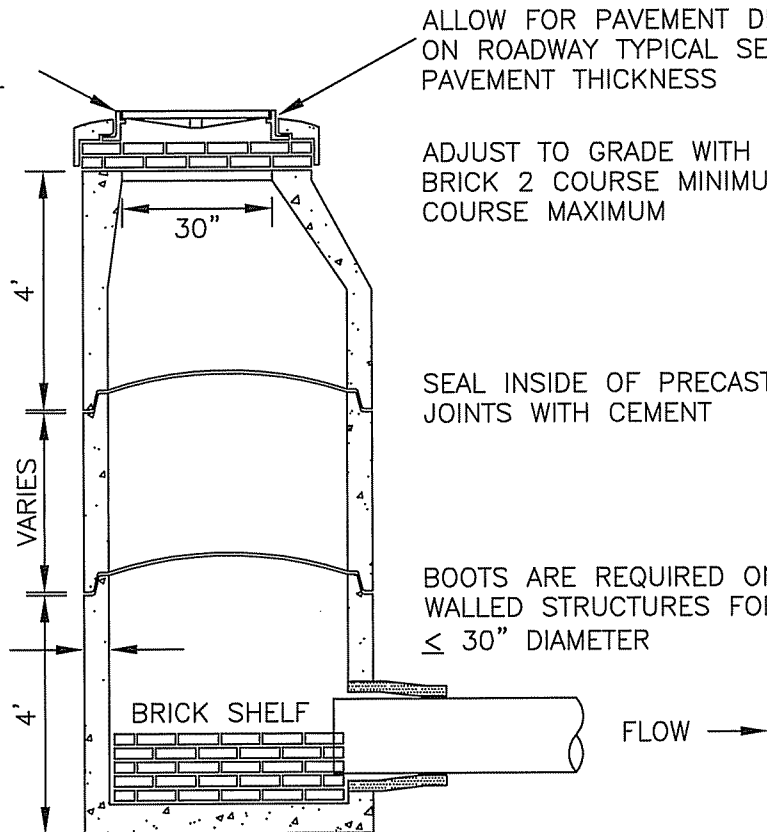
ALLOW FOR PAVEMENT DEPENDING
ON ROADWAY TYPICAL SECTION;
PAVEMENT THICKNESS

ADJUST TO GRADE WITH HARD RED
BRICK 2 COURSE MINIMUM, 5
COURSE MAXIMUM

SEAL INSIDE OF PRECAST
JOINTS WITH CEMENT

BOOTS ARE REQUIRED ON 5"
WALLED STRUCTURES FOR PIPES
≤ 30" DIAMETER

5" IF REINFORCED
8" IF UN-REINFORCED

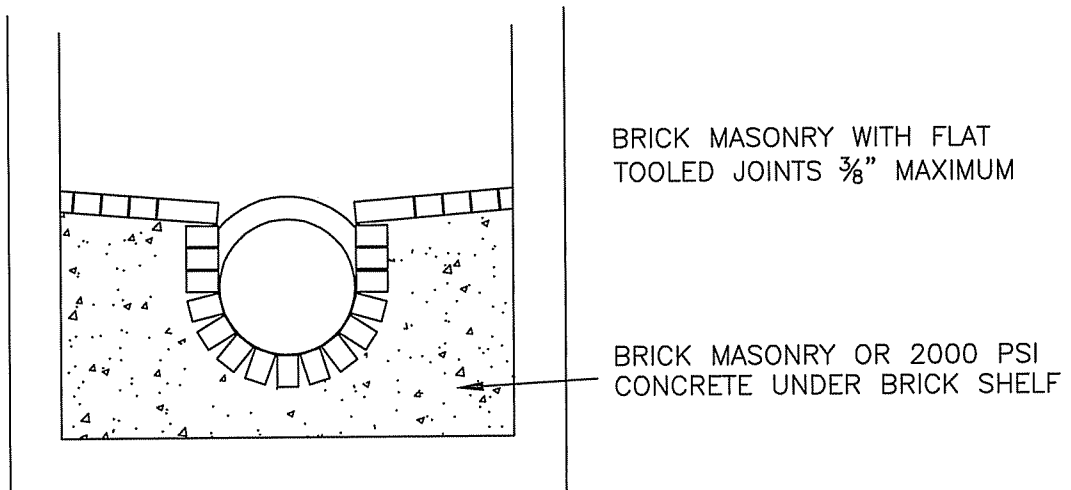
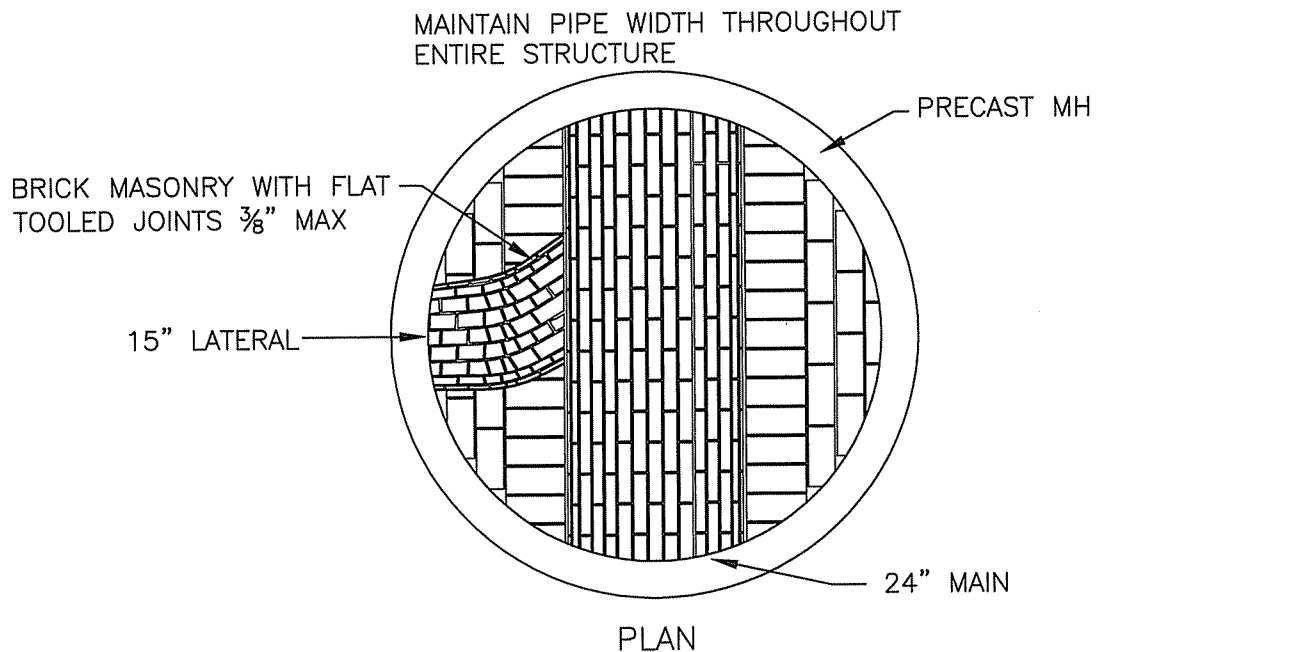


8" CRUSHED STONE BEDDING REQUIRED

NOTES:

1. CONCRETE: 4,000 PSI AFTER 28 DAYS
2. SEAL ALL PRECAST JOINTS WITH BITUMASTIC SEAL
3. LIFT HOLES AND BOOT RECESSES ARE TO BE SEALED WITH PORTLAND CEMENT FLUSH TO THE OUTSIDE STRUCTURE WALL PRIOR TO BACKFILLING
4. ALL STRUCTURES WITH MULTIPLE PIPES SHALL HAVE A MINIMUM OF 12" OF INSIDE SURFACE BETWEEN HOLES. NO MORE THAN 75% OF A HORIZONTAL CROSS-SECTION SHALL BE HOLES, AND THERE SHALL BE NO HOLES CLOSER THAN 3" TO JOINTS
5. MANHOLES AND TRAFFIC SIGNAL LOOPS SHALL BE SEPARATED BY A MINIMUM OF 2' TO ALLOW FOR MAINTENANCE OF STRUCTURE

| NO. | REVISION | DATE | City of Concord Engineering Services Division | SECTION: STORM DRAIN | |
|--------------|----------|------|---|----------------------|-------|
| - | - | - | DRAIN MANHOLE | DRAWING NO. | SD-2 |
| - | - | - | | DATE: | 12/08 |
| - | - | - | | PAGE: | 1 |
| APPROVED BY: | | | | | |



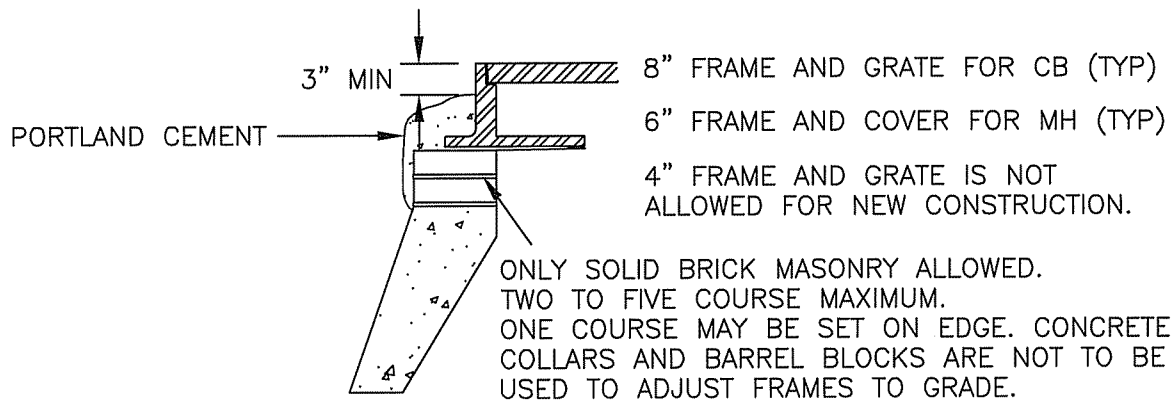
12" PIPE - 9 BRICK MINIMUM
15" PIPE - 11 BRICK MINIMUM
24" PIPE - BRICK TO TOP
30" PIPE - BRICK TO TOP

SECTION

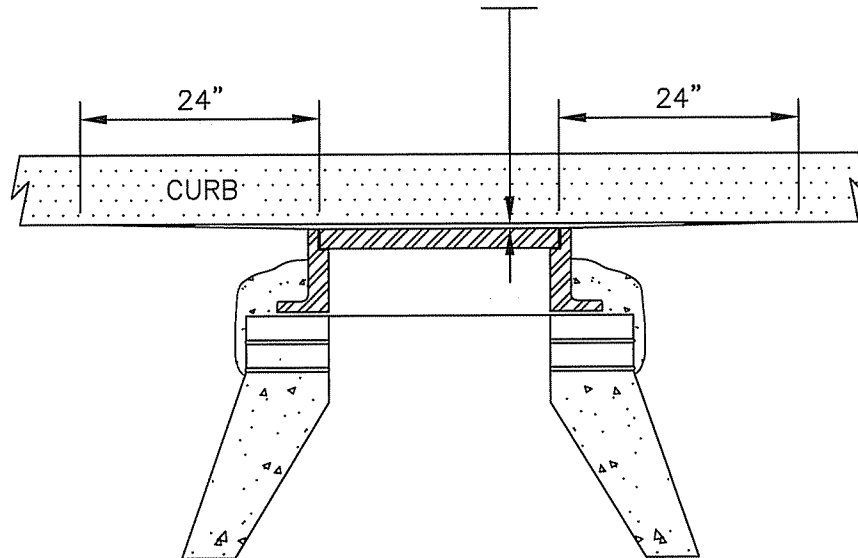
NOTES:

1. FOR 12" TO 15", CONSTRUCT INVERT THROUGH LOWER HALF OF PIPE (24" RCP SHOWN AS AN EXAMPLE)
2. FOR MAINS GREATER THAN 15", CONSTRUCT INVERT TO TOP OF PIPE
3. MAINTAIN TROUGH WIDTH THROUGH STRUCTURE
4. TYPICAL BRICK, ASTM DESIGNATION: C 321-93

| NO. | REVISION | DATE | City of Concord Engineering Services Division | SECTION: SEWER/STORM | |
|-----|----------|------|---|----------------------|---------|
| - | - | - | STORM DRAIN BRICK SHELF CONSTRUCTION | DRAWING NO. | SD-3 |
| - | - | - | | DATE: 12/08 | PAGE: 1 |
| - | - | - | | APPROVED BY: | |



CATCH BASINS TO BE MAX $\frac{1}{2}$ " BELOW FINAL PAVEMENT.
MANHOLES TO BE $\frac{1}{8}$ " BELOW FINAL PAVEMENT.



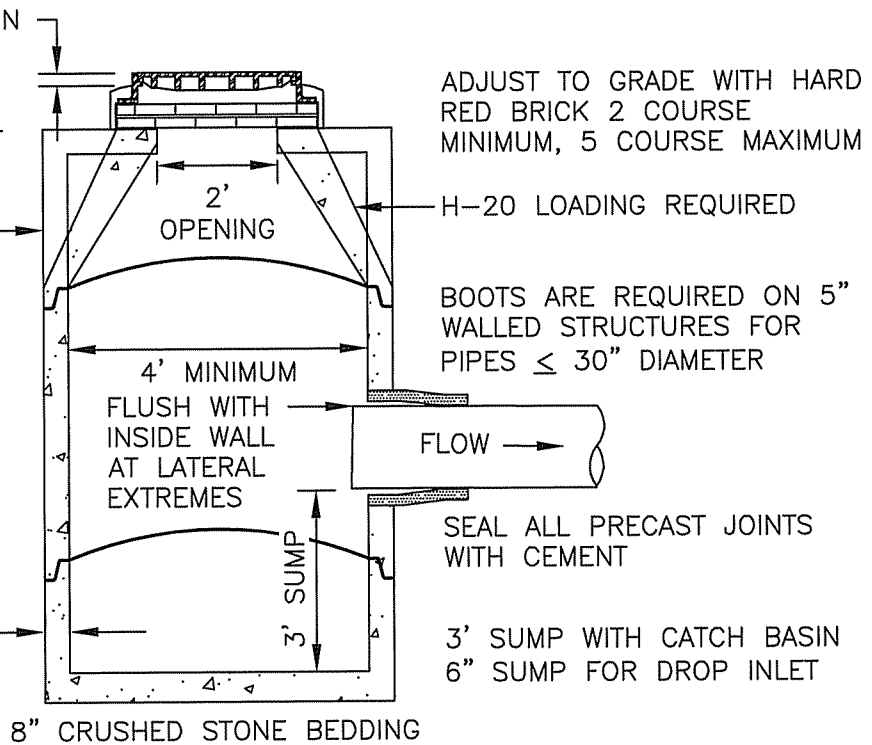
REINFORCED CONCRETE DROP INLET TOP
WITH VERTICAL CURB

| NO. | REVISION | DATE | City of Concord Engineering Services Division | SECTION: SEWER/STORM | |
|--------------|----------|------|---|----------------------|--|
| — | — | — | ADJUSTING FRAMES TO GRADE | DRAWING NO. SD—4 | |
| — | — | — | | DATE: 12/08 | |
| — | — | — | | PAGE: 1 | |
| APPROVED BY: | | | | | |

8" CAST IRON FRAME SET ON FULL BED OF MORTAR AND SEALED WITH CEMENT. CEMENT SHOULD BE KEPT BELOW THE BASE COUSE OF PAVEMENT (3" MINIMUM)

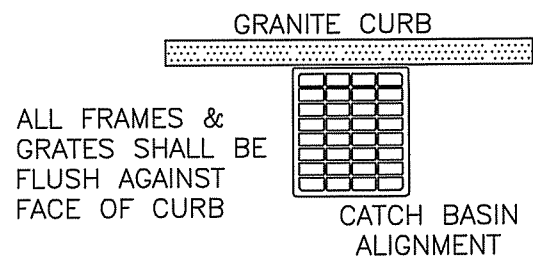
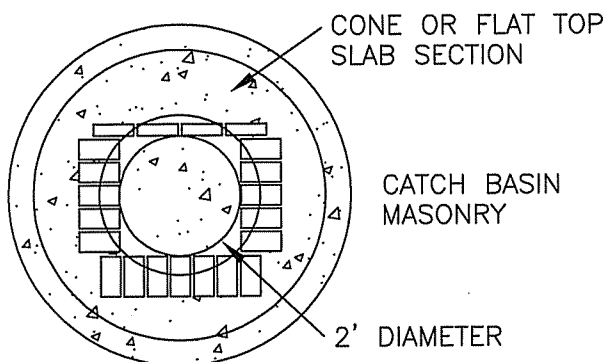
FLAT SLAB TOP REQUIRED WHEN THE DEPTH FROM THE TOP OF THE PIPE TO THE GRATE IS < 48"

5" IF REINFORCED
8" IF UN-REINFORCED



NOTES:

1. CONCRETE: 4,000 PSI AFTER 28 DAYS
2. SEAL ALL PRECAST JOINTS WITH BITUMASTIC SEAL
3. LIFT HOLES AND BOOT RECESSES ARE TO BE SEALED WITH PORTLAND CEMENT FLUSH TO THE OUTSIDE STRUCTURE WALL PRIOR TO BACKFILLING
4. ALL STRUCTURES WITH MULTIPLE PIPES SHALL HAVE A MINIMUM OF 12" OF INSIDE SURFACE BETWEEN HOLES. NO MORE THAN 75% OF A HORIZONTAL CROSS-SECTION SHALL BE HOLES, AND THERE SHALL BE NO HOLES CLOSER THAN 3" TO JOINTS
5. MANHOLES AND TRAFFIC SIGNAL LOOPS SHALL BE SEPARATED BY A MINIMUM OF 2' TO ALLOW FOR MAINTENANCE OF STRUCTURE



NOTES:

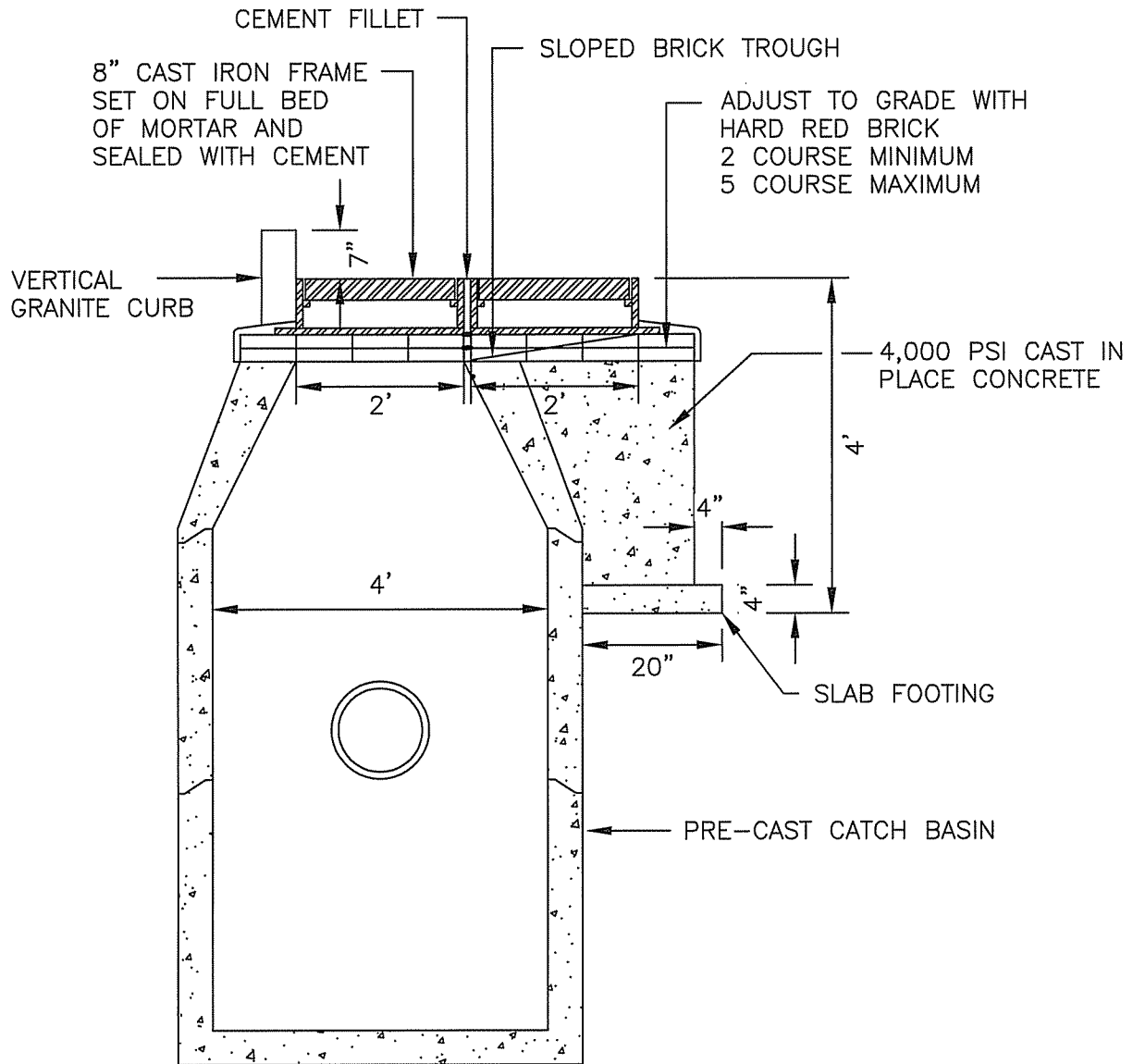
1. CAST IRON FRAME THREE FLANGED GRATE FOR VERTICAL SLOPE CURB INSTALLATIONS
2. NHDOT TYPE "F" GRATE REQUIRED FOR ROADWAYS HAVING SLOPES EQUAL TO OR GREATER THAN 3%. TYPE "F" SHALL BE BICYCLE SAFE

| NO. | REVISION | DATE | City of Concord Engineering Services Division | SECTION: STORM DRAIN |
|--------------|----------|------|---|----------------------|
| - | - | - | CATCH BASIN / DROP INLET | DRAWING NO. SD-5 |
| - | - | - | | DATE: 12/08 |
| - | - | - | | PAGE: 1 |
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| | MINIMUM SLOPE VALUES (FT/FT)* | |
|-----------|-------------------------------|--------------|
| PIPE SIZE | SANITARY APPLICATIONS | STORM DRAINS |
| 8" | 0.0060 | N/A |
| 10" | 0.0028 | N/A |
| 12" | 0.0022 | 0.0030 |
| 15" | 0.0015 | 0.0023 |
| 18" | 0.0012 | 0.0018 |
| 21" | 0.0010 | N/A |
| 24" | 0.0008 | 0.0012 |
| 27" | 0.0007 | N/A |
| 30" | 0.0006 | 0.0009 |
| 36" | 0.0005 | 0.0007 |

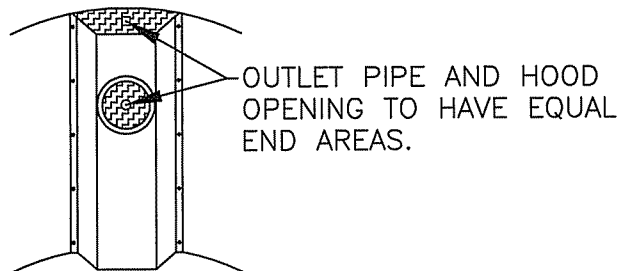
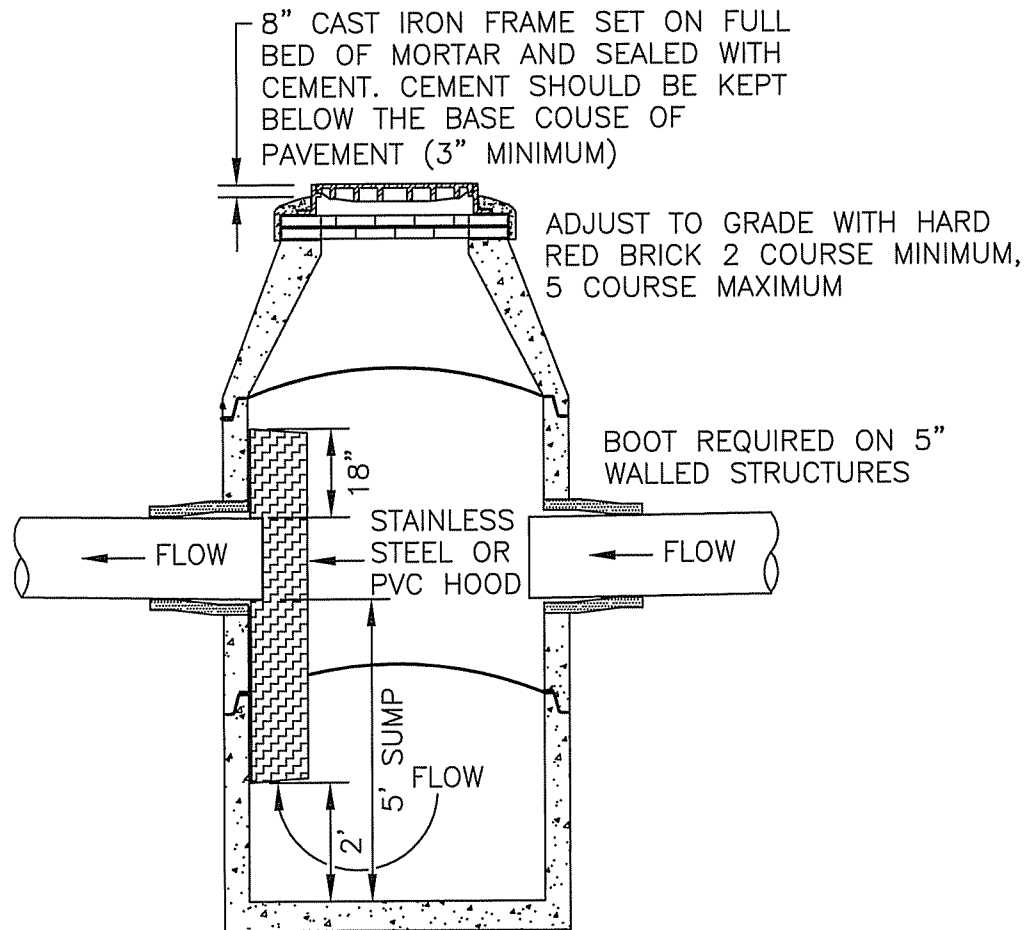
* THESE VALUES ARE BASED ON MINIMUM VELOCITIES OF 2 FEET PER SECOND ON SANITARY SEWERS AND 2.5 FEET PER SECOND FOR STORM DRAINS WHILE FLOWING FULL. THIS VALUE SET BY THE CITY ENGINEER.

| NO. | REVISION | DATE | City of Concord Engineering Services Division | SECTION: SEWER/STORM | |
|--------------|----------|------|---|----------------------|--|
| — | — | — | HYDRAULIC FLOW CHART | DRAWING NO. SD-6 | |
| — | — | — | | DATE: 12/08 | |
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| APPROVED BY: | | | | | |



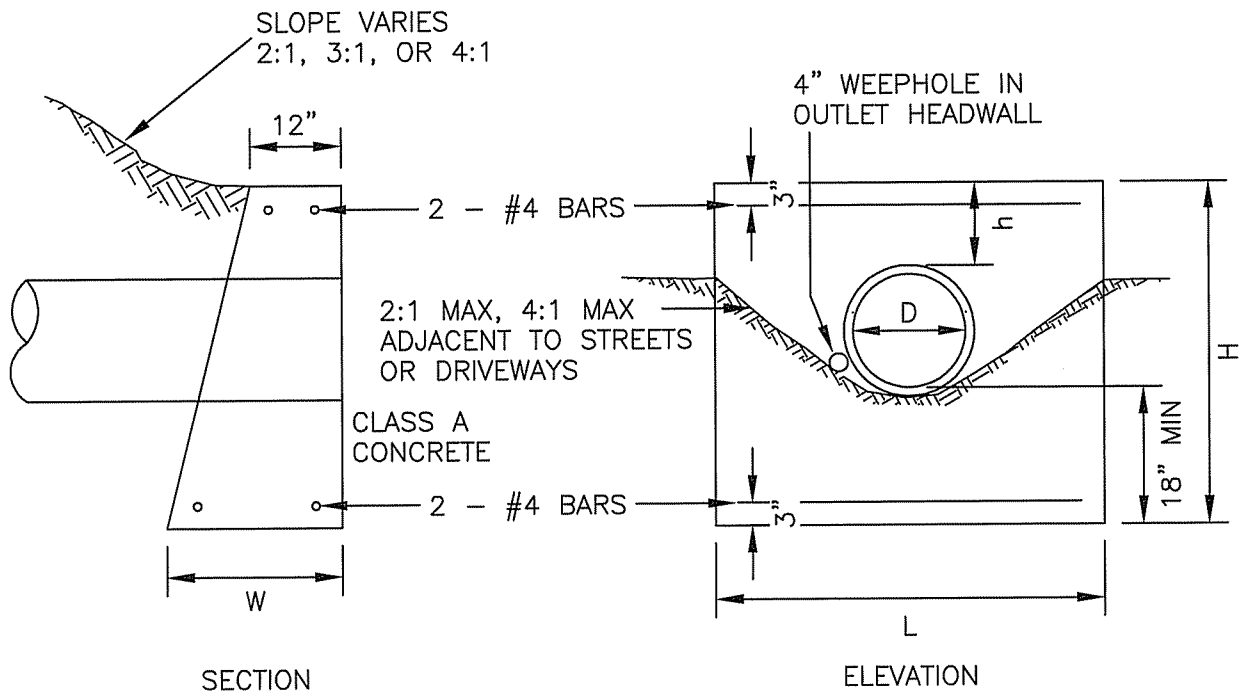
NOTE: DETAIL TO BE USED WHEN TYING INTO EXISTING STORM DRAIN SYSTEM OR MATCHING TO EXISTING CURB. DETAIL SHOULD NOT BE USED FOR NEW CONSTRUCTION

| NO. | REVISION | DATE | City of Concord Engineering Services Division | SECTION: STORM DRAIN | |
|--------------|----------|------|---|----------------------|-------|
| - | - | - | DOUBLE FRAME AND GRATE CATCH BASIN | DRAWING NO. | SD-7 |
| - | - | - | | DATE: | 12/08 |
| - | - | - | | PAGE: | 1 |
| APPROVED BY: | | | | | |



BOLT TO STRUCTURE WALL USING $\frac{1}{2}$ " X 4"
 STAINLESS STEEL LAG BOLTS. USE 5 BOLTS PER
 SIDE EQUALLY SPACED AND 3" FROM TOP AND
 BOTTOM. 12 GAGE STAINLESS BAFFLE OR $\frac{1}{4}$ " PVC.
 WATER TIGHT SEAL REQUIRED AT STRUCTURE WALL

| NO. | REVISION | DATE | City of Concord Engineering Services Division | SECTION: STORM DRAIN | |
|--------------|----------|------|---|----------------------|---------|
| - | - | - | OIL/SEDIMENT CONTROL BARRIER | DRAWING NO. | SD-8 |
| - | - | - | | DATE: 12/08 | PAGE: 1 |
| - | - | - | | | |
| APPROVED BY: | | | | | |

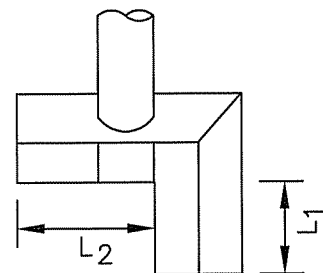


| DIAMETER D INCHES | MASONRY PER STD HDR (CY) | STEEL PER STD HDR (LB) | LENGTH OF BARS | | L | H | W | h |
|----------------------|-----------------------------|---------------------------|-------------------|---------|-------|--------|-------|---|
| 12 | 0.80 | 11 | 3'-9" | 4'-2" | 3'-9" | 1'-11" | 1'-3" | |
| 15 | 1.32 | 15 | 5'-7" | 5'-11" | 4'-3" | 2' | 1'-6" | |
| 18 | 1.66 | 15 | 5'-7" | 6'-11" | 4'-6" | 2'-1" | 1'-6" | |
| 24 | 2.41 | 24 | 8'-6" | 8'-10" | 5'-0" | 2'-3" | 1'-6" | |
| 30 | 3.32 | 29 | 10'-6" | 10'-10" | 5'-6" | 2'-4" | 1'-6" | |
| 36 | 4.43 | 35 | 12'-6" | 12'-10" | 6'-0" | 2'-6" | 1'-6" | |
| 42 | 6.28 | 42 | 14'-11" | 15'-6" | 6'-9" | 2'-8" | 1'-9" | |
| 48 | 7.77 | 46 | 16'-11" | 17'-6" | 7'-3" | 2'-9" | 1'-9" | |
| 54 | 9.46 | 53 | 18'-10" | 19'-5" | 7'-9" | 2'-11" | 1'-9" | |
| 60 | 11.42 | 57 | 20'-10" | 21'-5" | 8'-3" | 3' | 1'-9" | |
| 66 | 13.68 | 64 | 22'-10" | 23'-5" | 8'-9" | 3'-2" | 1'-9" | |
| 72 | 15.79 | 68 | 24'-10" | 25'-4" | 9'-3" | 3'-3" | 1'-9" | |

$$L_1 + L_2 = L$$

$$L_1 = \frac{L-D}{2}$$

$$L_2 = \frac{L+D}{2}$$

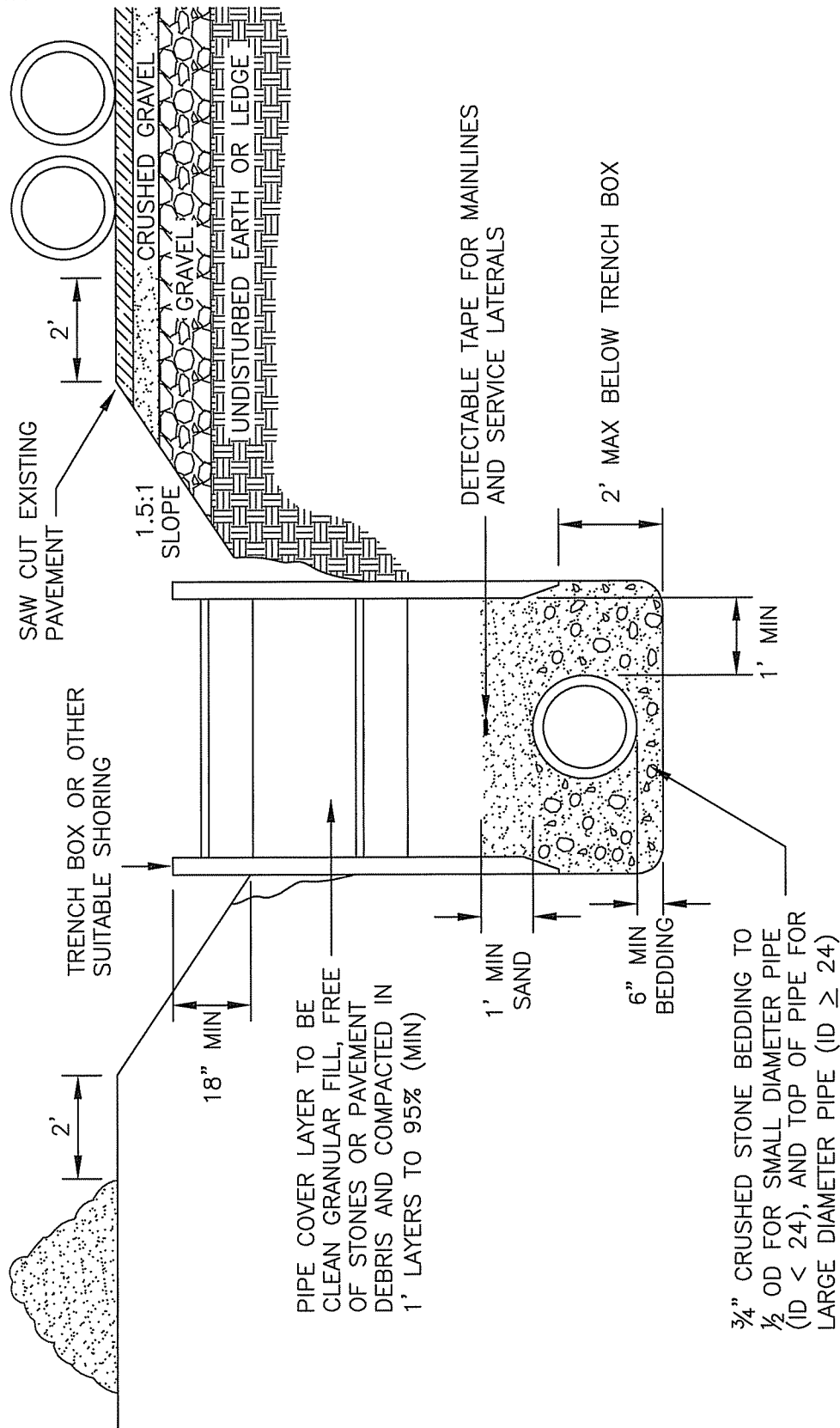


ALTERNATE "L" HEADWALL

| NO. | REVISION | DATE | City of Concord Engineering Services Division | SECTION: STORM DRAIN |
|--------------|----------|------|---|----------------------|
| - | - | - | STANDARD HEADWALL | DRAWING NO. SD-9 |
| - | - | - | | DATE: 12/08 |
| - | - | - | | PAGE: 1 |
| APPROVED BY: | | | | |

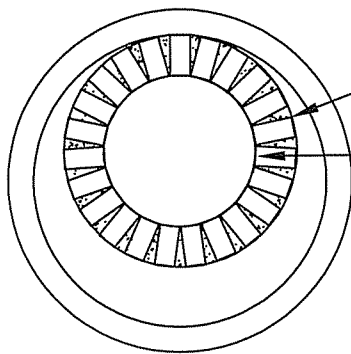


EXCAVATION TO BE CONSTRUCTED PER TYPICAL SECTION OR RECONSTRUCTED TO MATCH EXISTING PAVEMENT AND SUB-BASE DEPTHS



ALL EXCAVATIONS OVER 20' IN DEPTH MUST BE DESIGNED BY A REGISTERED PROFESSIONAL ENGINEER

| NO. | REVISION | DATE | City of Concord Engineering Services Division | | SECTION: SEWER/STORM | |
|--------------|----------|------|---|--|----------------------|-------|
| - | - | - | SANITARY SEWER & STORM DRAIN PIPE INSTALLATION | | DRAWING NO. | SM-1 |
| - | - | - | | | DATE: | 12/08 |
| - | - | - | | | PAGE: | 1 |
| APPROVED BY: | | | | | | |



MANHOLE BRICK MASONRY (NO CONCRETE GRADE RINGS)

30 INCH OPENING REQUIRED FOR ALL MANHOLE STRUCTURES

8" CAST IRON FRAME SET ON FULL BED OF MORTAR AND SEALED WITH CEMENT. CEMENT SHOULD BE KEPT BELOW THE BASE COUSE OF PAVEMENT (3" MINIMUM)

ADJUST TO GRADE WITH HARD RED BRICK 2 COURSE MINIMUM, 5 COURSE MAXIMUM

BUTYL RUBBER SEALANT

BOOT REQUIRED ON 5" WALLED STRUCTURES

5" IF REINFORCED
8" IF UN-REINFORCED

FLOW →

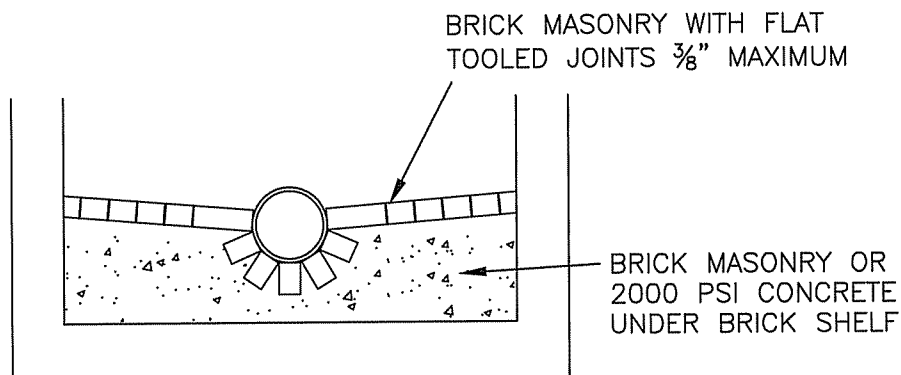
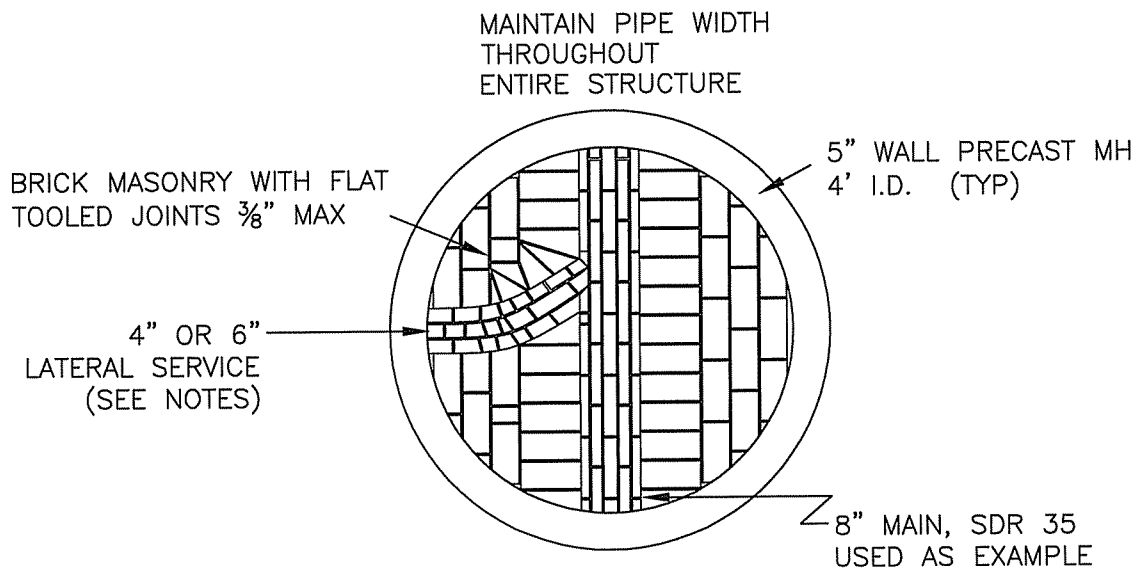
BRICK SHELF

8" CRUSHED STONE BEDDING

NOTES:

1. CONCRETE: 4,000 PSI AFTER 28 DAYS
2. H-20 LOADING REQUIRED
3. ON INSIDE OF STRUCTURE, PRE-CAST JOINTS AND LADDER RUNG HOLES TO BE SEALED WITH PORTLAND CEMENT
4. LIFT HOLES ARE TO BE SEALED WITH PORTLAND CEMENT FLUSH TO THE OUTSIDE STRUCTURE WALL PRIOR TO BACKFILLING
5. ALL STRUCTURES WITH MULTIPLE PIPES SHALL HAVE A MINIMUM OF 12" OF INSIDE SURFACE BETWEEN HOLES. NO MORE THAN 75% OF A HORIZONTAL CROSS-SECTION SHALL BE HOLES, AND THERE SHALL BE NO HOLES CLOSER THAN 3" TO JOINTS
6. MANHOLES AND TRAFFIC SIGNAL LOOPS SHALL BE SEPARATED BY A MINIMUM OF 2' TO ALLOW FOR MAINTENANCE OF STRUCTURE

| NO. | REVISION | DATE | City of Concord Engineering Services Division | SECTION: | SEWER |
|--------------|----------|------|---|-------------|-------|
| - | - | - | SEWER MANHOLE | DRAWING NO. | SM-2 |
| - | - | - | | DATE: | 12/08 |
| - | - | - | | PAGE: | 1 |
| APPROVED BY: | | | | | |

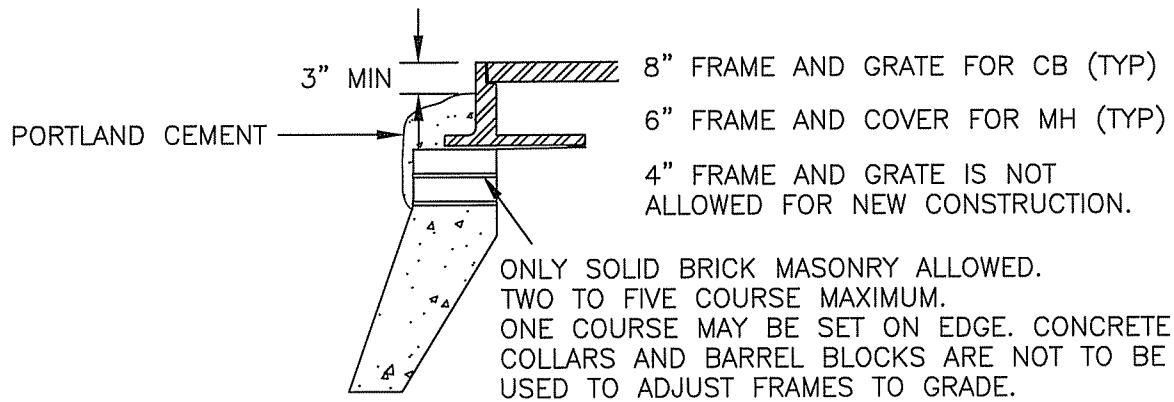


- 8" PIPE - 7 BRICK MINIMUM (THIS WILL
BE JUST ABOVE THE MIDPOINT)
- 10" PIPE - 7 BRICK MINIMUM
- 12" PIPE - 9 BRICK MINIMUM
- 15" PIPE - 11 BRICK MINIMUM

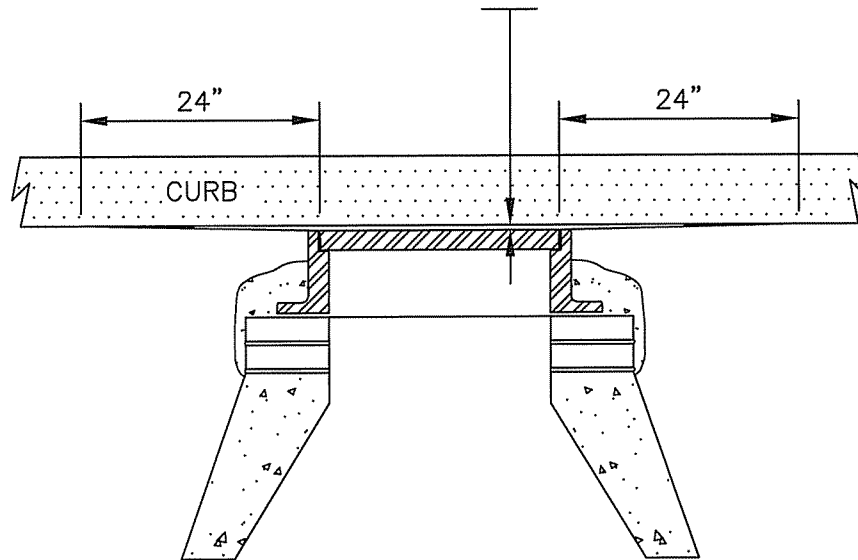
NOTES:

1. FOR MAINS 8" TO 15", CONSTRUCT INVERT THROUGH LOWER HALF OF PIPE (MINIMUM) (8" PVC SHOWN AS AN EXAMPLE)
2. FOR MAINS GREATER THAN 15", CONSTRUCT INVERT TO TOP OF PIPE
3. MAINTAIN TROUGH WIDTH THROUGH STRUCTURE
4. TYPICAL BRICK, ASTM DESIGNATION: C 321-93
5. SERVICE CONNECTIONS SHOULD BE PER THE "SEWER SERVICE CONNECTION / INSIDE DROP MANHOLE" DETAIL. WHERE GRADES PROHIBIT SUCH A CONNECTION THE CONNECTION SHOULD BE AS SHOWN WITH THE SERVICE INVERT 2" ABOVE THE INVERT OF THE MAIN WHERE IT ENTERS THE MANHOLE.

| NO. | REVISION | DATE | City of Concord Engineering Services Division | SECTION: SEWER/STORM | |
|--------------|----------|------|---|----------------------|---------|
| - | - | - | SANITARY BRICK SHELF CONSTRUCTION | DRAWING NO. | SM-3 |
| - | - | - | | DATE: 12/08 | PAGE: 1 |
| - | - | - | | | |
| APPROVED BY: | | | | | |

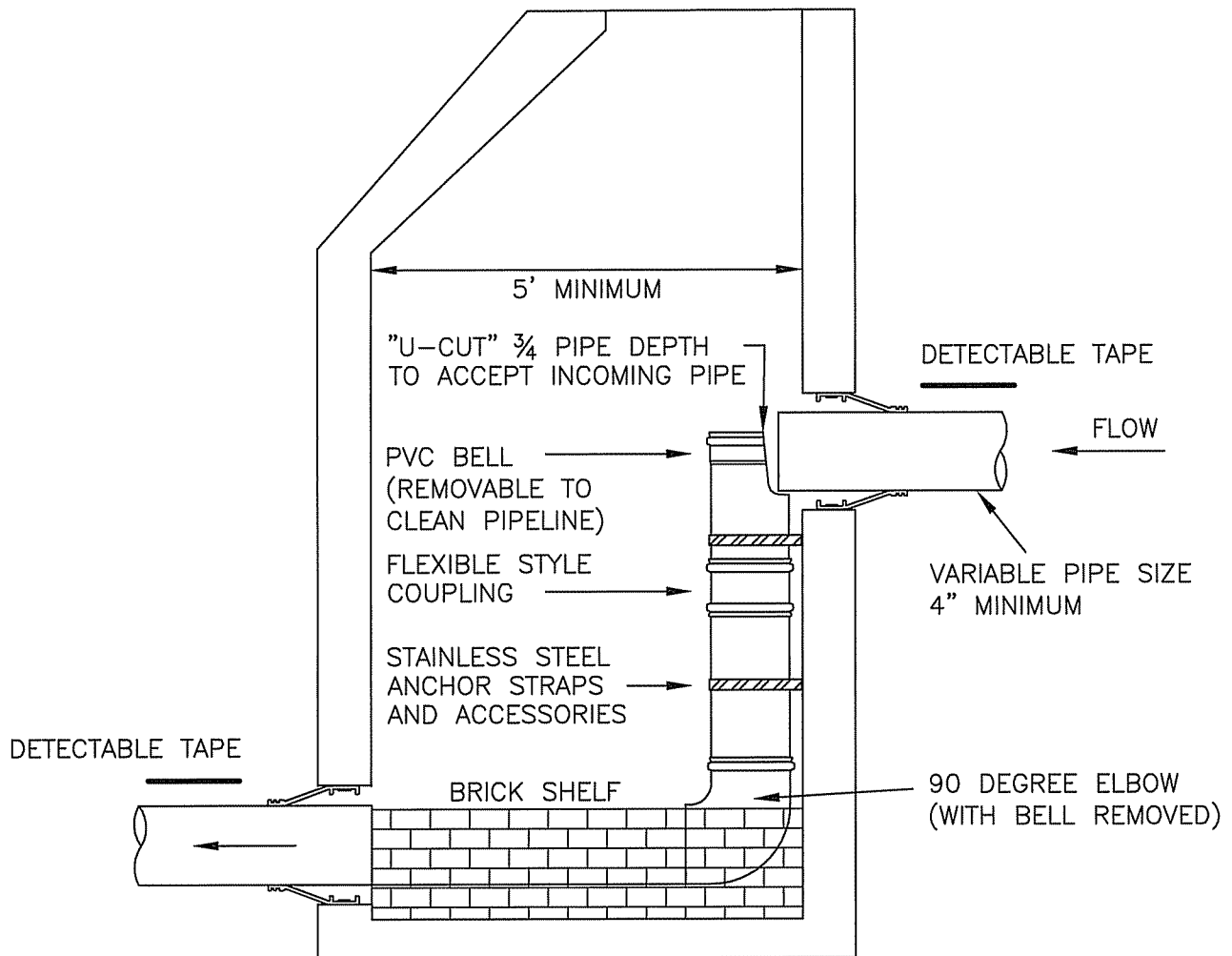


CATCH BASINS TO BE MAX $\frac{1}{2}$ " BELOW FINAL PAVEMENT.
MANHOLES TO BE $\frac{1}{8}$ " BELOW FINAL PAVEMENT.



REINFORCED CONCRETE DROP INLET TOP
WITH VERTICAL CURB

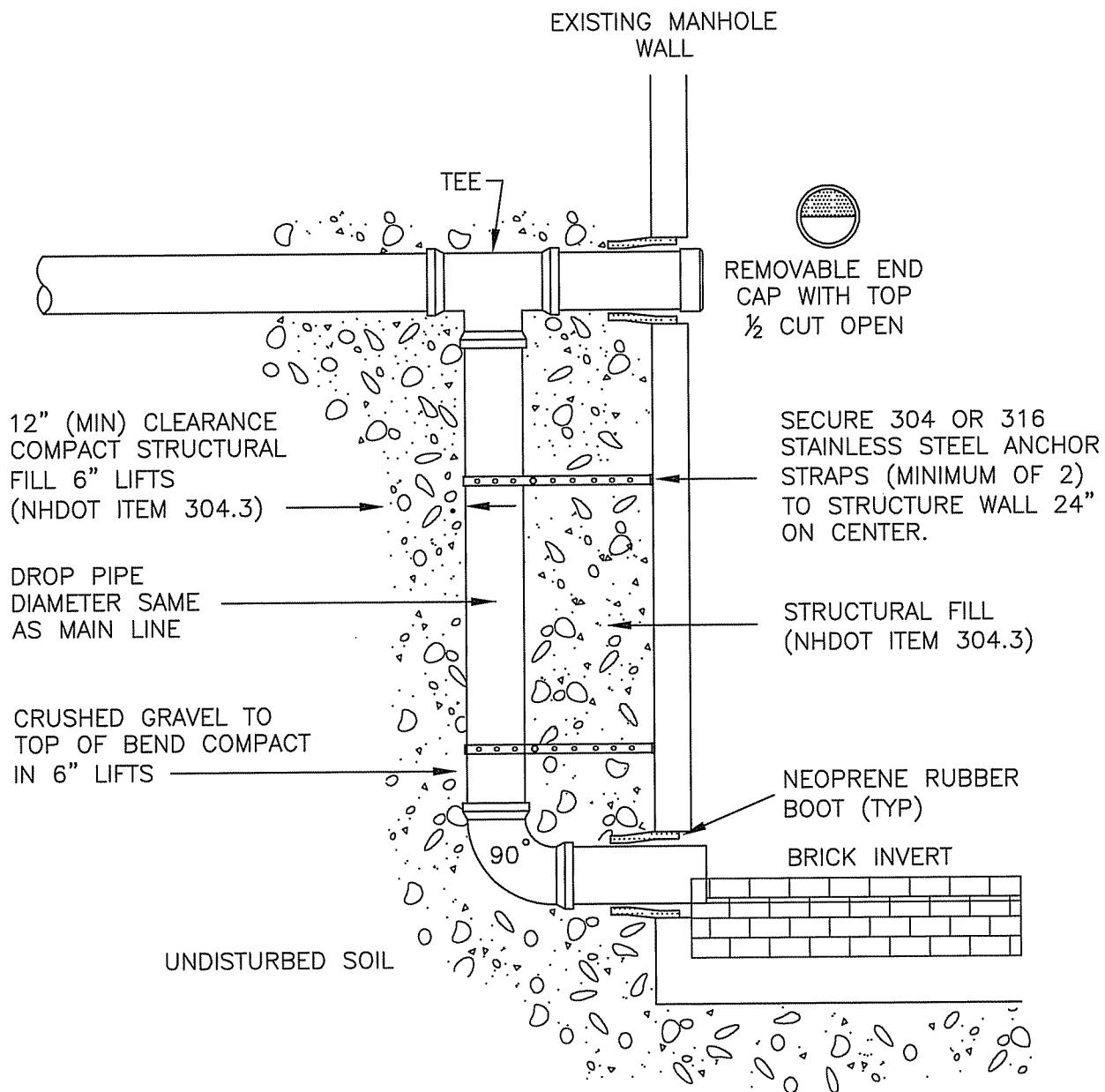
| NO. | REVISION | DATE | City of Concord Engineering Services Division | SECTION: SEWER/STORM | |
|--------------|----------|------|---|----------------------|-------|
| - | - | - | ADJUSTING FRAMES TO GRADE | DRAWING NO. | SM-4 |
| - | - | - | | DATE: | 12/08 |
| - | - | - | | PAGE: | 1 |
| APPROVED BY: | | | | | |



NOTES:

1. IF DISTANCE FROM SERVICE TO MAIN IS $\geq 2'$ AN INSIDE DROP IS REQUIRED. OTHERWISE INVERT OF SERVICE MUST MATCH INVERT OF MAIN
2. 4" SERVICES REQUIRE A 6" DIAMETER DROP. OTHERWISE, DROP DIAMETER TO MATCH INLET DIAMETER
3. MANHOLES SHALL BE CONSTRUCTED IN ACCORDANCE TO THE CITY OF CONCORD STANDARDS FOR SANITARY MANHOLE CONSTRUCTION
4. INSIDE DROP MANHOLES SHALL HAVE A MINIMUM 5' INSIDE DIAMETER FOR 8" PIPE
5. ANCHOR STRAPS (MINIMUM OF 2) AND BOLTS TO BE 304 OR 316 STAINLESS STEEL AND NOT MORE THAN 3' ON CENTER. SECURE AS DIRECTED: STRAPS - 1" WIDE, BOLTS - $\frac{3}{8}$ " X $2\frac{1}{2}$ " LONG

| NO. | REVISION | DATE | City of Concord Engineering Services Division | SECTION: SEWER | |
|--------------|----------|------|---|----------------|-------|
| - | - | - | SEWER MAIN INSIDE DROP MANHOLE | DRAWING NO. | SM-5 |
| - | - | - | | DATE: | 12/08 |
| - | - | - | | PAGE: | 1 |
| APPROVED BY: | | | | | |



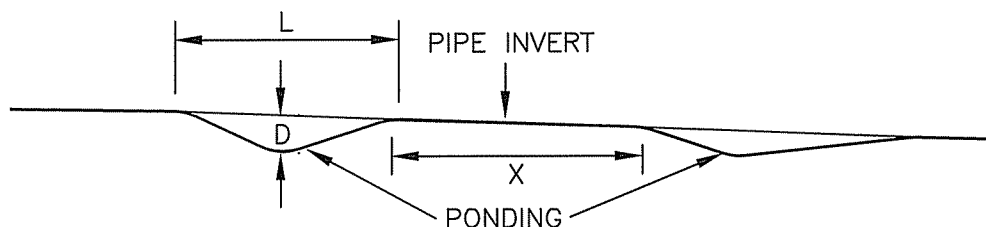
| NO. | REVISION | DATE | City of Concord Engineering Services Division | SECTION: | SEWER |
|--------------|----------|------|---|-------------|-------|
| - | - | - | SEWER MAIN OUTSIDE DROP MANHOLE | DRAWING NO. | SM-6 |
| - | - | - | | DATE: | 12/08 |
| - | - | - | | PAGE: | 1 |
| APPROVED BY: | | | | | |

| | MINIMUM SLOPE VALUES (FT/FT)* | |
|-----------|-------------------------------|--------------|
| PIPE SIZE | SANITARY APPLICATIONS | STORM DRAINS |
| 8" | 0.0060 | N/A |
| 10" | 0.0028 | N/A |
| 12" | 0.0022 | 0.0030 |
| 15" | 0.0015 | 0.0023 |
| 18" | 0.0012 | 0.0018 |
| 21" | 0.0010 | N/A |
| 24" | 0.0008 | 0.0012 |
| 27" | 0.0007 | N/A |
| 30" | 0.0006 | 0.0009 |
| 36" | 0.0005 | 0.0007 |

* THESE VALUES ARE BASED ON MINIMUM VELOCITIES OF 2 FEET PER SECOND ON SANITARY SEWERS AND 2.5 FEET PER SECOND FOR STORM DRAINS WHILE FLOWING FULL. THIS VALUE SET BY THE CITY ENGINEER.

| NO. | REVISION | DATE | City of Concord Engineering Services Division | SECTION: SEWER/STORM | |
|--------------|----------|------|---|----------------------|---------|
| - | - | - | HYDRAULIC FLOW CHART | DRAWING NO. | SM-7 |
| - | - | - | | DATE: 12/08 | PAGE: 1 |
| - | - | - | | | |
| APPROVED BY: | | | | | |

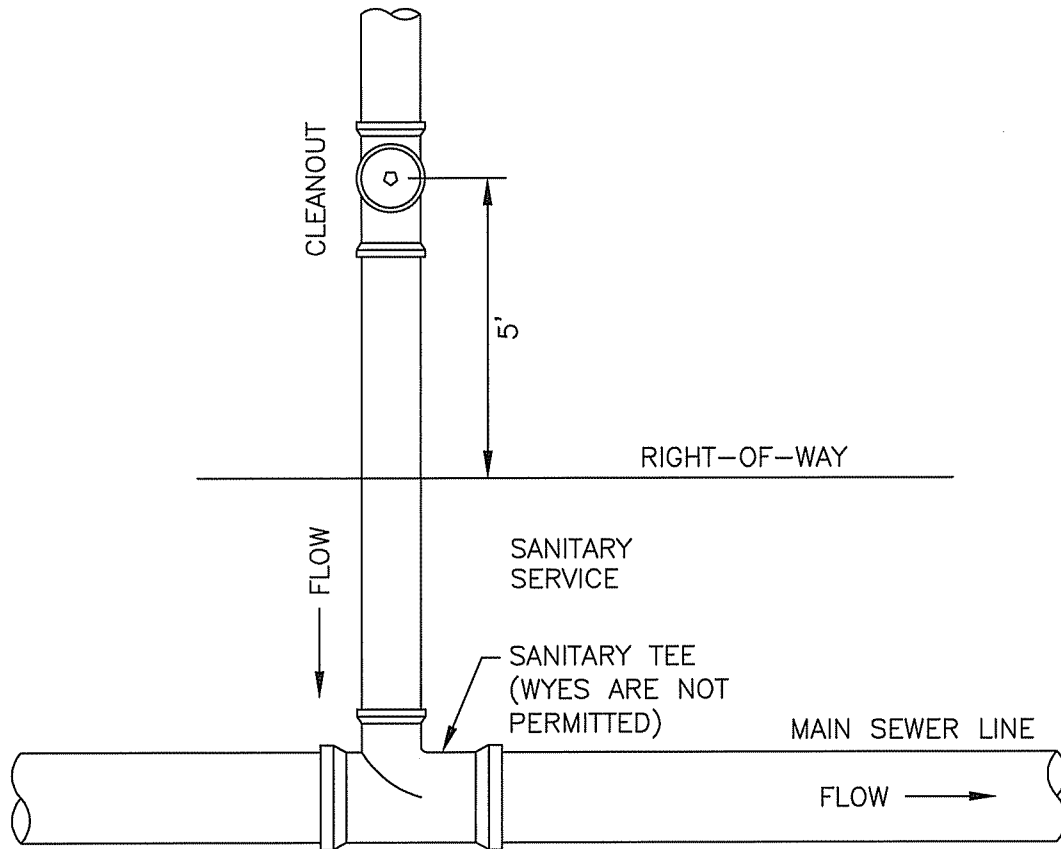
| PIPE DIAMETER | MAXIMUM ALLOWABLE DEPTH (D) OF SAG | MAXIMUM ALLOWABLE LENGTH (L) OF SAG | MINIMUM ALLOWABLE DISTANCE (X) BETWEEN SAGS |
|---------------|------------------------------------|-------------------------------------|---|
| 4" | NONE | NONE | NONE |
| 6" | NONE | NONE | NONE |
| 8" | $\frac{1}{2}$ " | 4 FT | 40 FT |
| 10" | $\frac{1}{2}$ " | 6 FT | 60 FT |
| 12" & LARGER | $\frac{1}{2}$ " | 8 FT | 80 FT |



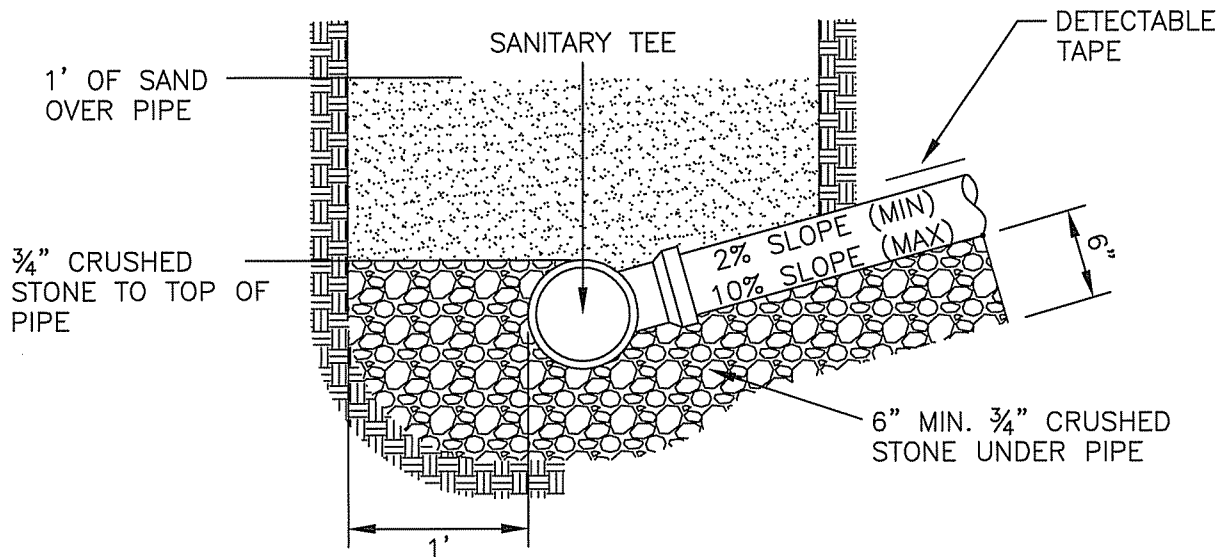
NOTES:

1. 4" AND 6" LINES ARE TYPICALLY USED FOR SERVICE CONNECTIONS AND ARE LAID AT A MINIMUM OF $\frac{1}{4}$ " AND $\frac{1}{8}$ " PER FOOT RESPECTIVELY TO ELIMINATE PROBLEMS.
2. DUCTILE IRON PIPE IS RECOMMENDED FOR SLOPES LESS THAN 0.006%

| NO. | REVISION | DATE | City of Concord Engineering Services Division | SECTION: | SEWER |
|--------------|----------|------|---|-------------|-------|
| - | - | - | LIMIT OF SAGS IN PVC SANITARY SEWER PIPE | DRAWING NO. | SM-8 |
| - | - | - | | DATE: | 12/08 |
| - | - | - | | PAGE: | 1 |
| APPROVED BY: | | | | | |



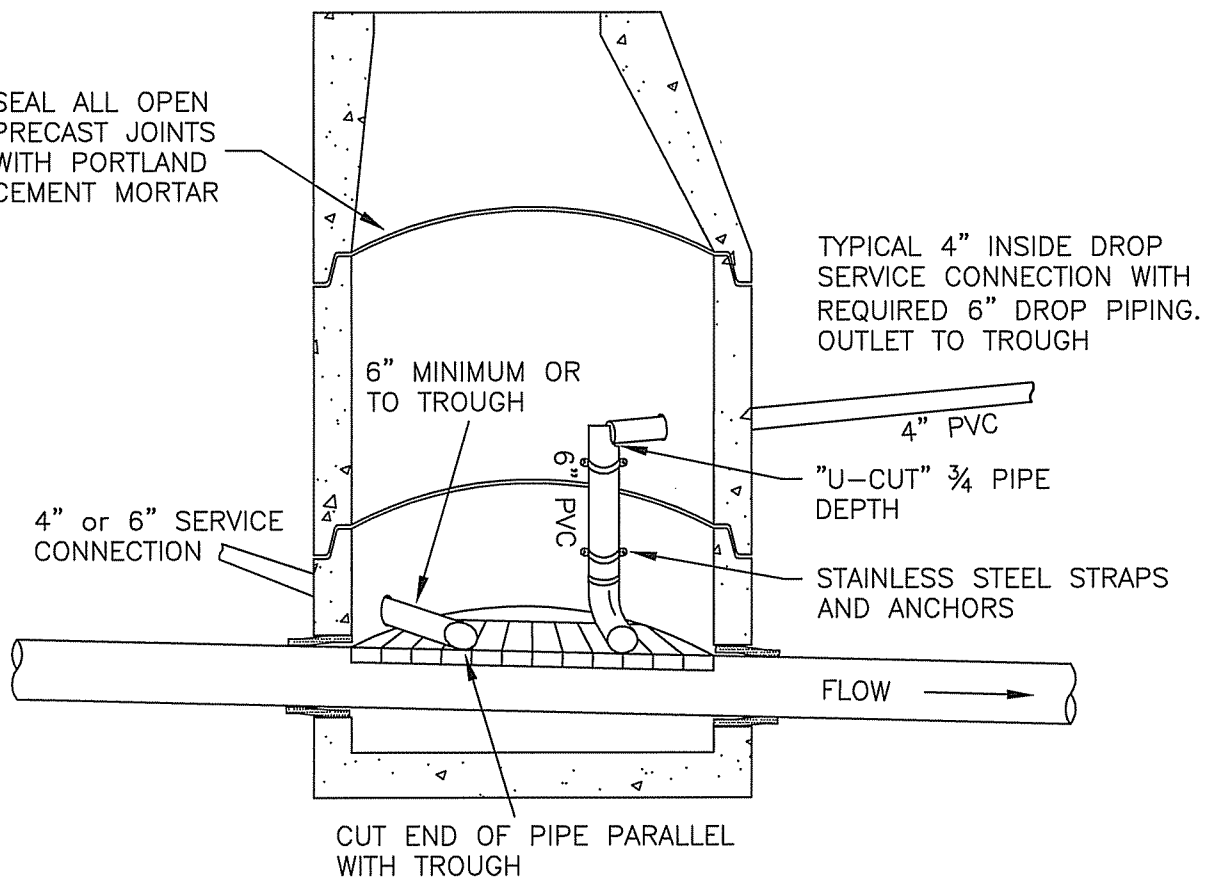
PLAN



SECTION

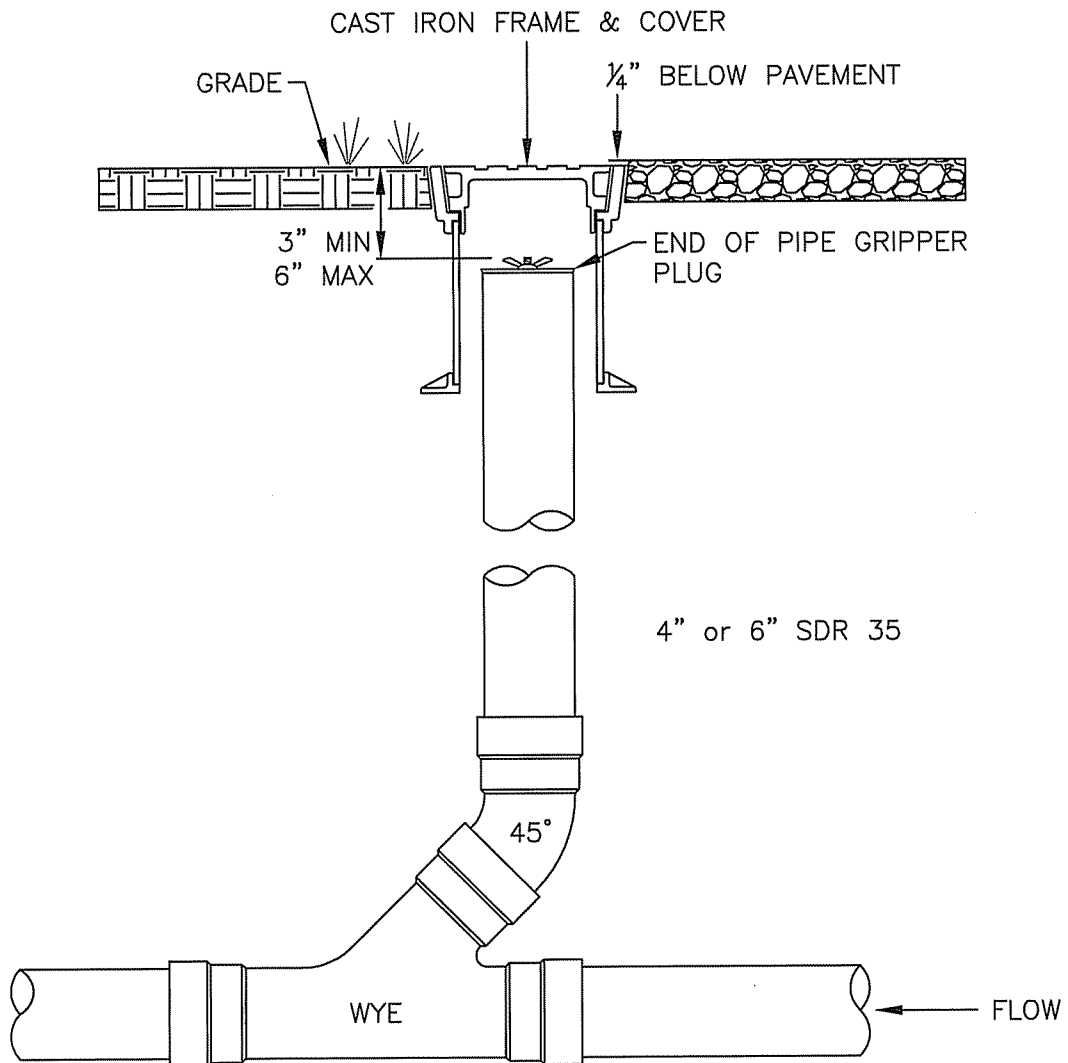
| NO. | REVISION | DATE | City of Concord Engineering Services Division | SECTION: | SEWER |
|--------------|----------|------|---|-------------|-------|
| - | - | - | SEWER SERVICE CONNECTION AT MAIN | DRAWING NO. | SS-1 |
| - | - | - | | DATE: | 12/08 |
| - | - | - | | PAGE: | 1 |
| APPROVED BY: | | | | | |

SEAL ALL OPEN
PRECAST JOINTS
WITH PORTLAND
CEMENT MORTAR

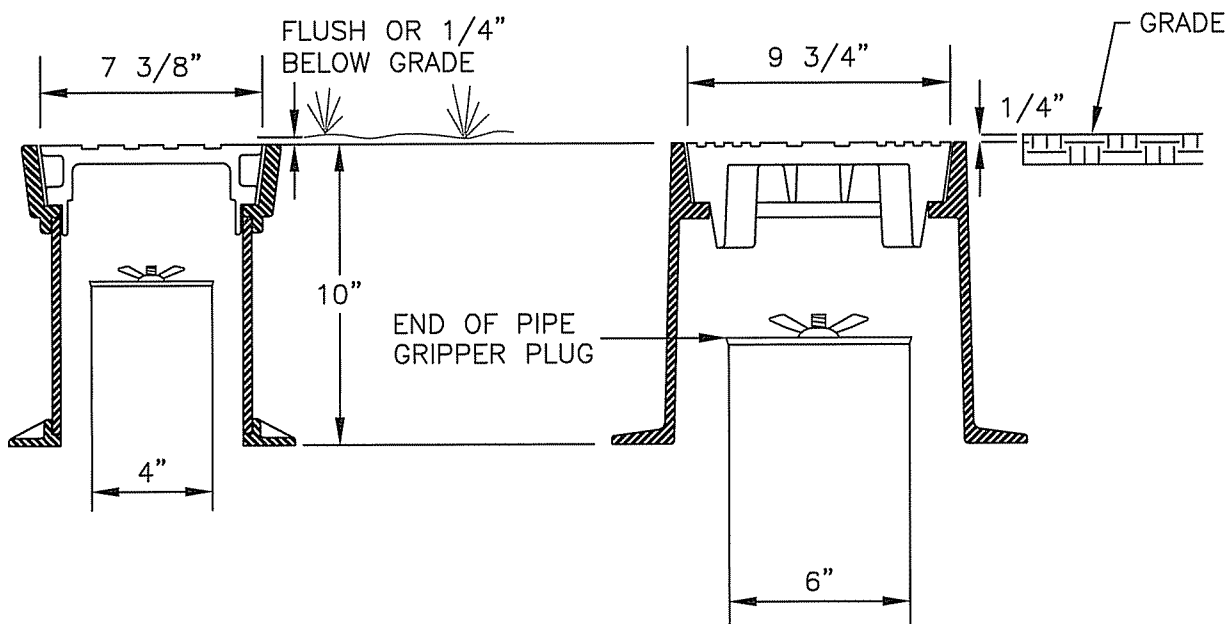
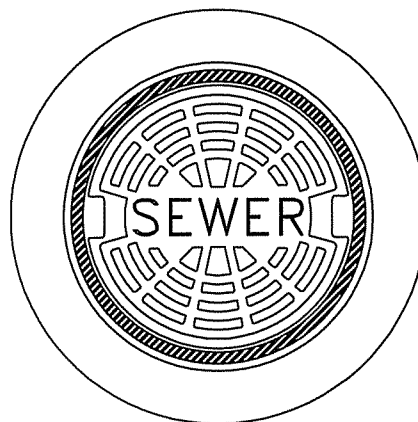
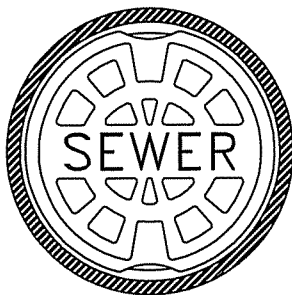


SHOULD THE SERVICE CONNECTION ENTER A STRUCTURE MORE THAN 24"
ABOVE THE INVERT A DROP CONNECTION WILL BE NECESSARY

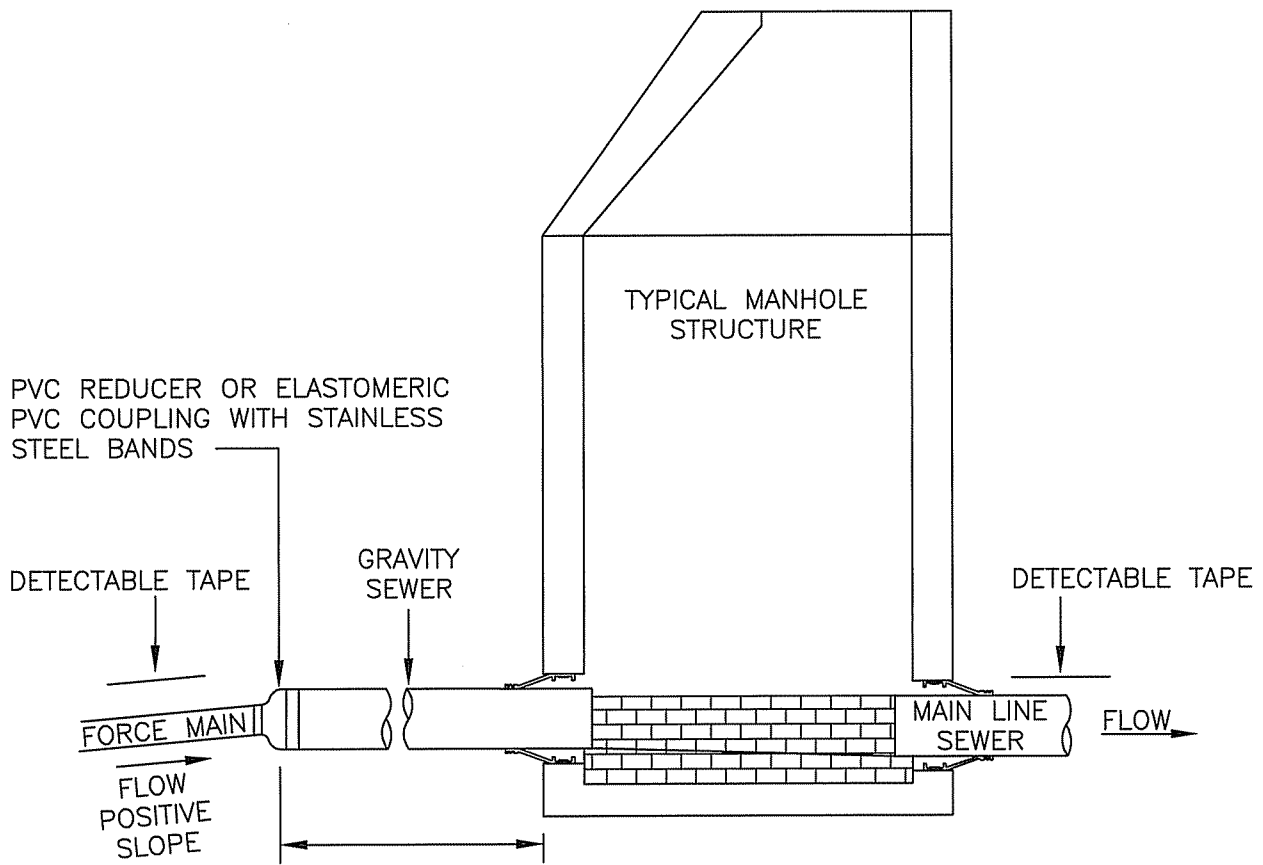
| NO. | REVISION | DATE | City of Concord Engineering Services Division | SECTION: ROADWAY | |
|--------------|----------|------|---|------------------|-------|
| - | - | - | SEWER SERVICE CONNECTION / INSIDE DROP MANHOLE | DRAWING NO. | SS-2 |
| - | - | - | | DATE: | 12/08 |
| - | - | - | | PAGE: | 1 |
| APPROVED BY: | | | | | |



| NO. | REVISION | DATE | City of Concord Engineering Services Division | SECTION: SEWER | |
|--------------|----------|------|---|----------------|-------|
| — | — | — | CLEANOUTS ON SERVICE LATERALS | DRAWING NO. | SS-3 |
| — | — | — | | DATE: | 12/08 |
| — | — | — | | PAGE: | 1 |
| APPROVED BY: | | | | | |



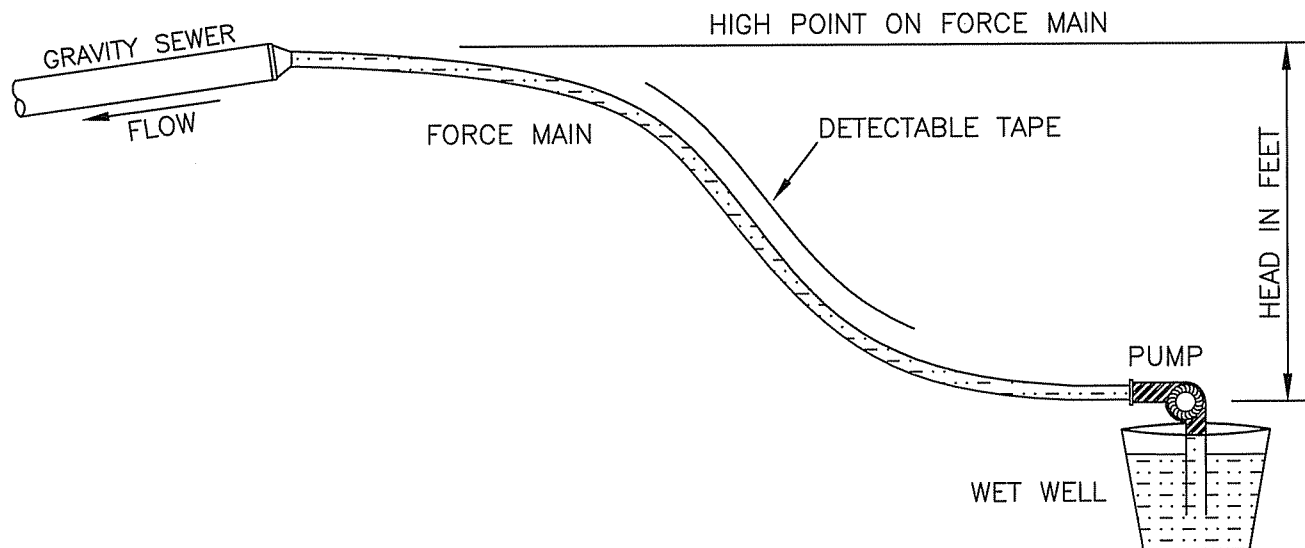
| NO. | REVISION | DATE | City of Concord Engineering Services Division | SECTION: SEWER | |
|--------------|----------|------|---|----------------|---------|
| — | — | — | CLEANOUT COVERS 4" OR 6" | DRAWING NO. | SS-4 |
| — | — | — | | DATE: 12/08 | PAGE: 1 |
| — | — | — | | | |
| APPROVED BY: | | | | | |



TRANSITION FROM FORCE MAIN TO GRAVITY SEWER
SHOULD OCCUR A MINIMUM OF 10' FROM A MANHOLE
FOR SEWER MAINS AND AT THE RIGHT-OF-WAY LINE FOR
SEWER SERVICES

FOR BRICK SHELF CONSTRUCTION REFER TO SANITARY
AND STORM DRAIN BRICK SHELF CONSTRUCTION DETAIL

| NO. | REVISION | DATE | City of Concord Engineering Services Division | SECTION: | SEWER |
|--------------|----------|------|---|-------------|-------|
| - | - | - | FORCE MAIN CONNECTION | DRAWING NO. | SS-5 |
| - | - | - | | DATE: | 12/08 |
| - | - | - | | PAGE: | 1 |
| APPROVED BY: | | | | | |



PRESSURE TEST REQUIREMENTS

PRESSURE (PSI) = 100 PSI OR HIGHER AS CALCULATED BY: HEAD X 1.5
(SAFETY FACTOR) / 2.31 FEET PER #

THE STATIC PRESSURE MUST HOLD FOR ONE HOUR TO BE ACCEPTABLE.

EXAMPLE:

HEAD = 80 FT

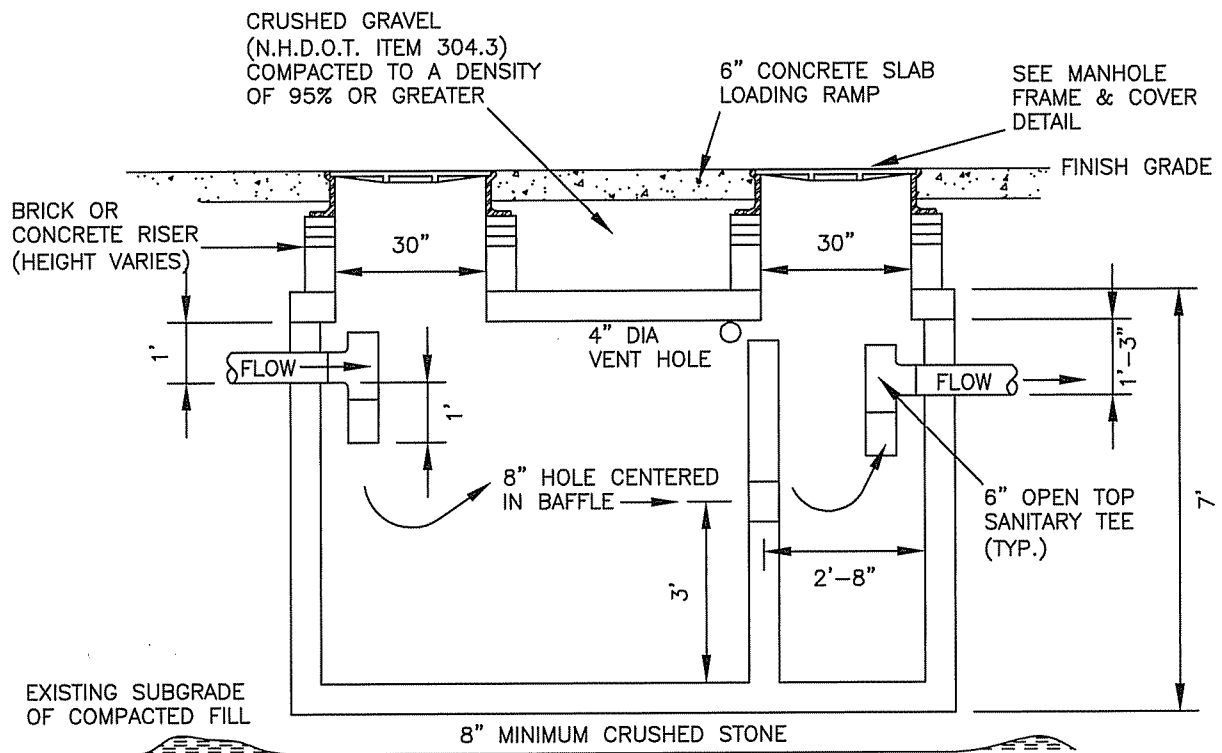
PRESSURE = 80 FT X 1.5 / 2.31 FT PER #

= 51.95 PSI (ROUND UP TO NEAREST 10#)

= 60 PSI

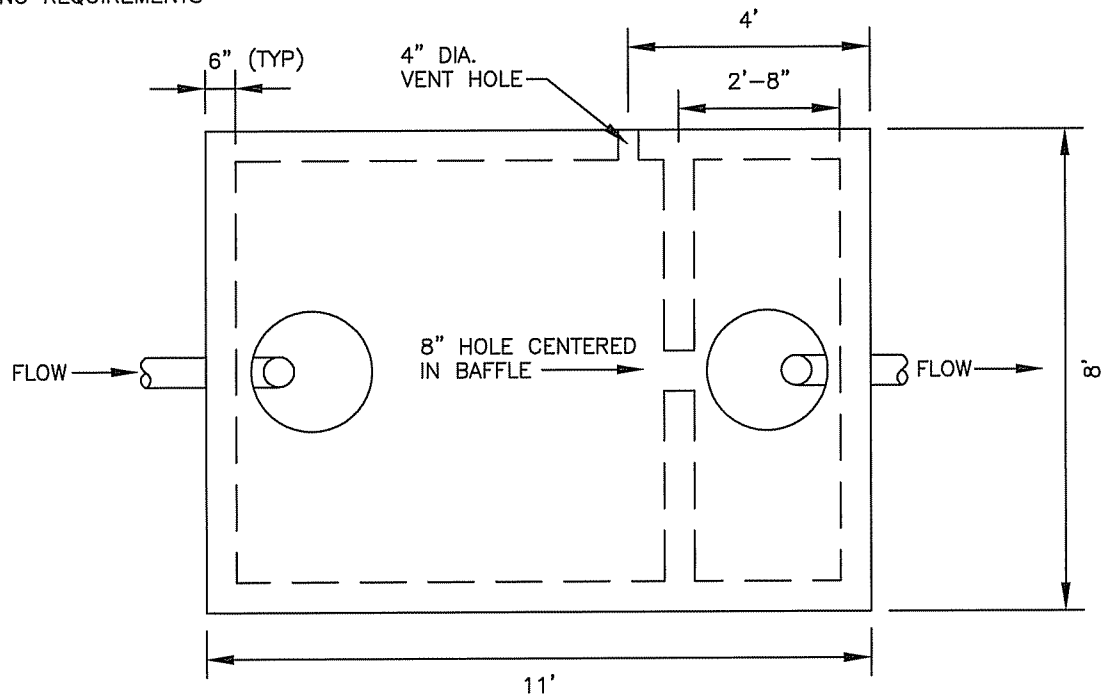
FORCE MAIN TEST PRESSURE TO BE 60 PSI

| NO. | REVISION | DATE | City of Concord Engineering Services Division | SECTION: | SEWER |
|--------------|----------|------|---|-------------|-------|
| - | - | - | FORCE MAIN TESTING REQUIREMENTS | DRAWING NO. | SS-6 |
| - | - | - | | DATE: | 12/08 |
| - | - | - | | PAGE: | 1 |
| APPROVED BY: | | | | | |



SECTION

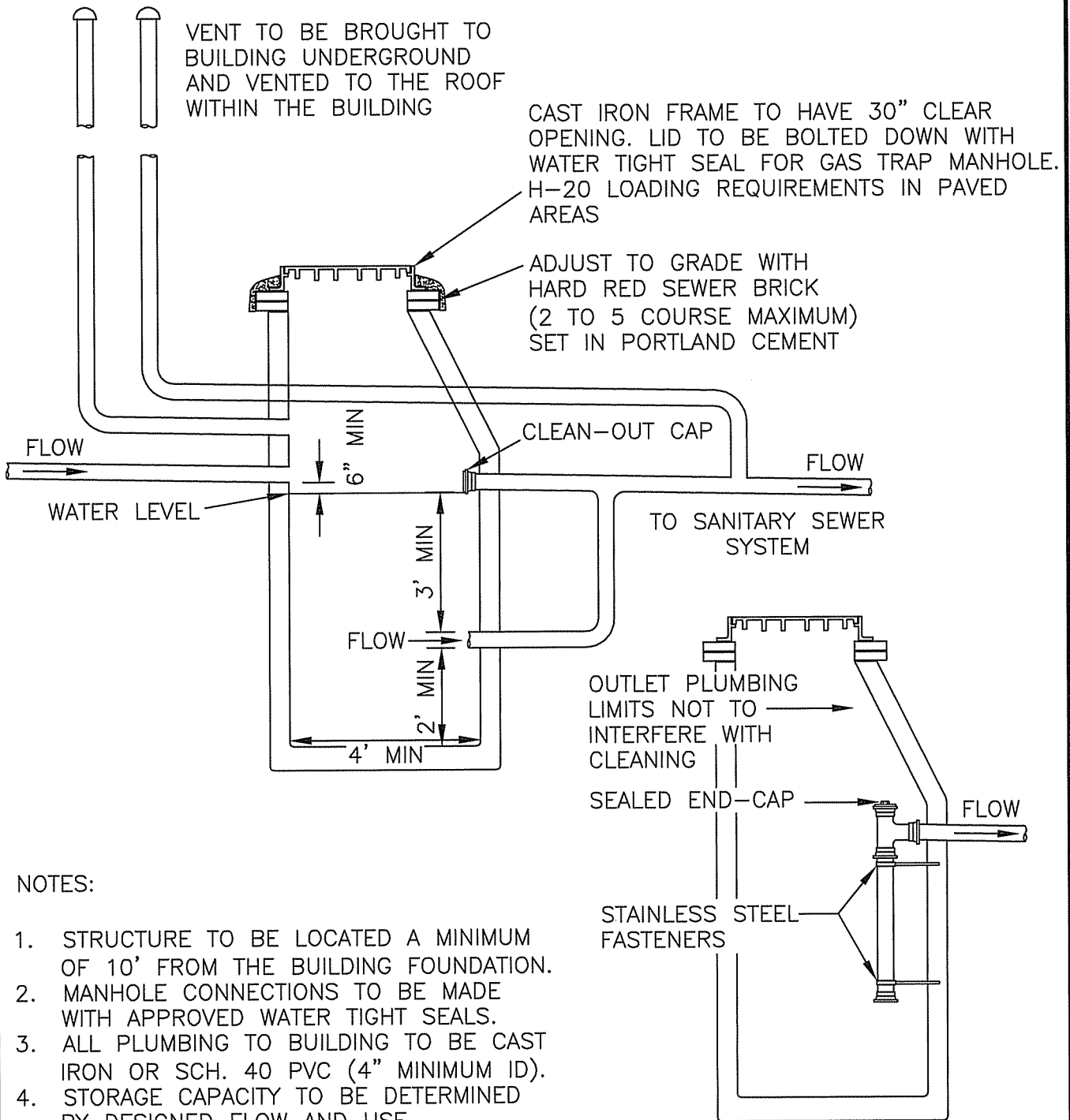
* GREASE TRAP SHALL
BE DESIGNED TO H-20
LOADING REQUIREMENTS



PLAN

| NO. | REVISION | DATE | City of Concord Engineering Services Division | SECTION: | SEWER |
|--------------|----------|------|---|-------------|-------|
| - | - | - | 3000 GALLON GREASE TRAP | DRAWING NO. | SS-7 |
| - | - | - | | DATE: | 12/08 |
| - | - | - | | PAGE: | 1 |
| APPROVED BY: | | | | | |

OPTIONAL
VENT SYSTEM

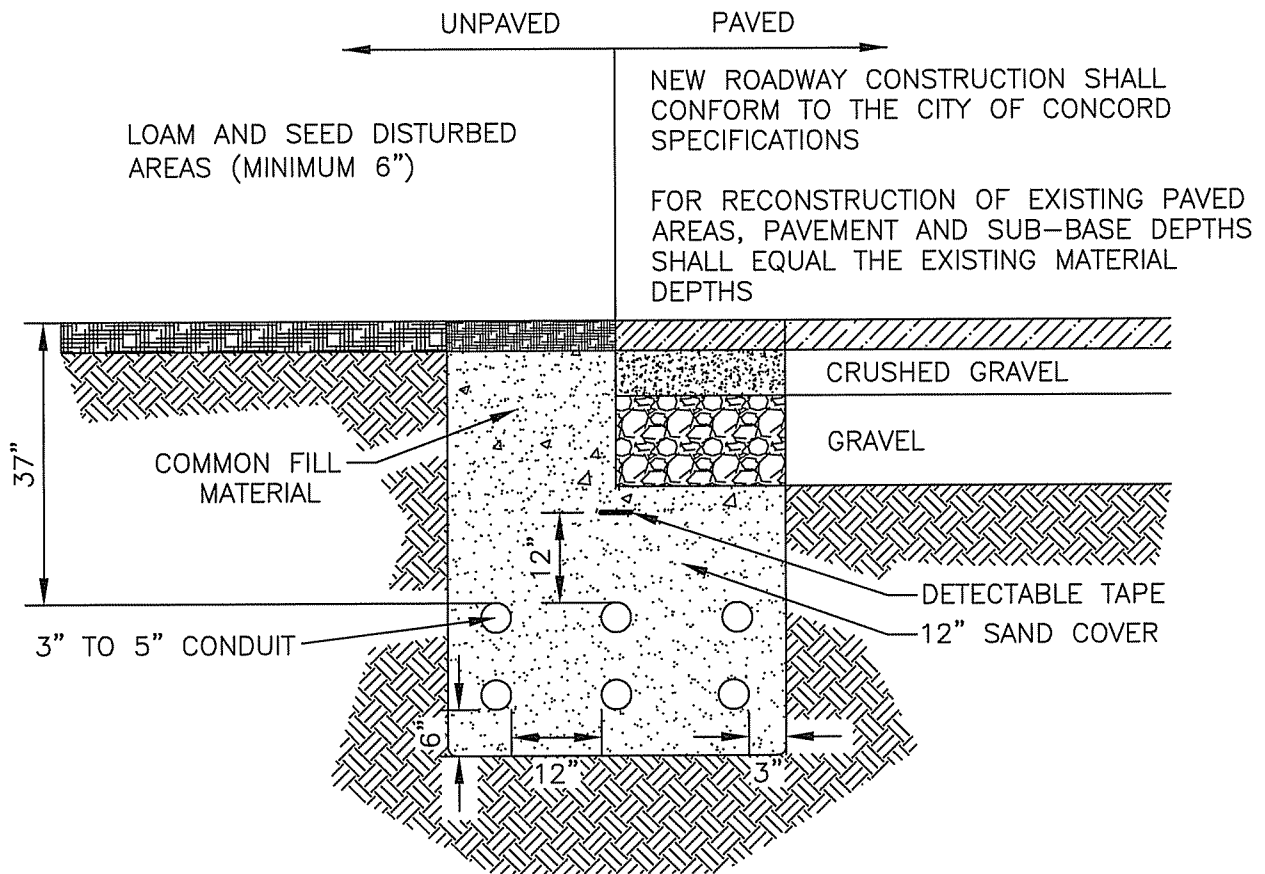


NOTES:

1. STRUCTURE TO BE LOCATED A MINIMUM OF 10' FROM THE BUILDING FOUNDATION.
2. MANHOLE CONNECTIONS TO BE MADE WITH APPROVED WATER TIGHT SEALS.
3. ALL PLUMBING TO BUILDING TO BE CAST IRON OR SCH. 40 PVC (4" MINIMUM ID).
4. STORAGE CAPACITY TO BE DETERMINED BY DESIGNED FLOW AND USE.

OPTIONAL INTERNAL PLUMBING
(ALL DIMENSIONAL AND VENTING
REQUIREMENTS APPLY)

| NO. | REVISION | DATE | City of Concord Engineering Services Division | SECTION: | SEWER |
|--------------|----------|------|---|-------------|-------|
| - | - | - | OIL/WATER INTERCEPTOR STRUCTURE | DRAWING NO. | SS-8 |
| - | - | - | | DATE: | 12/08 |
| - | - | - | | PAGE: | 1 |
| APPROVED BY: | | | | | |



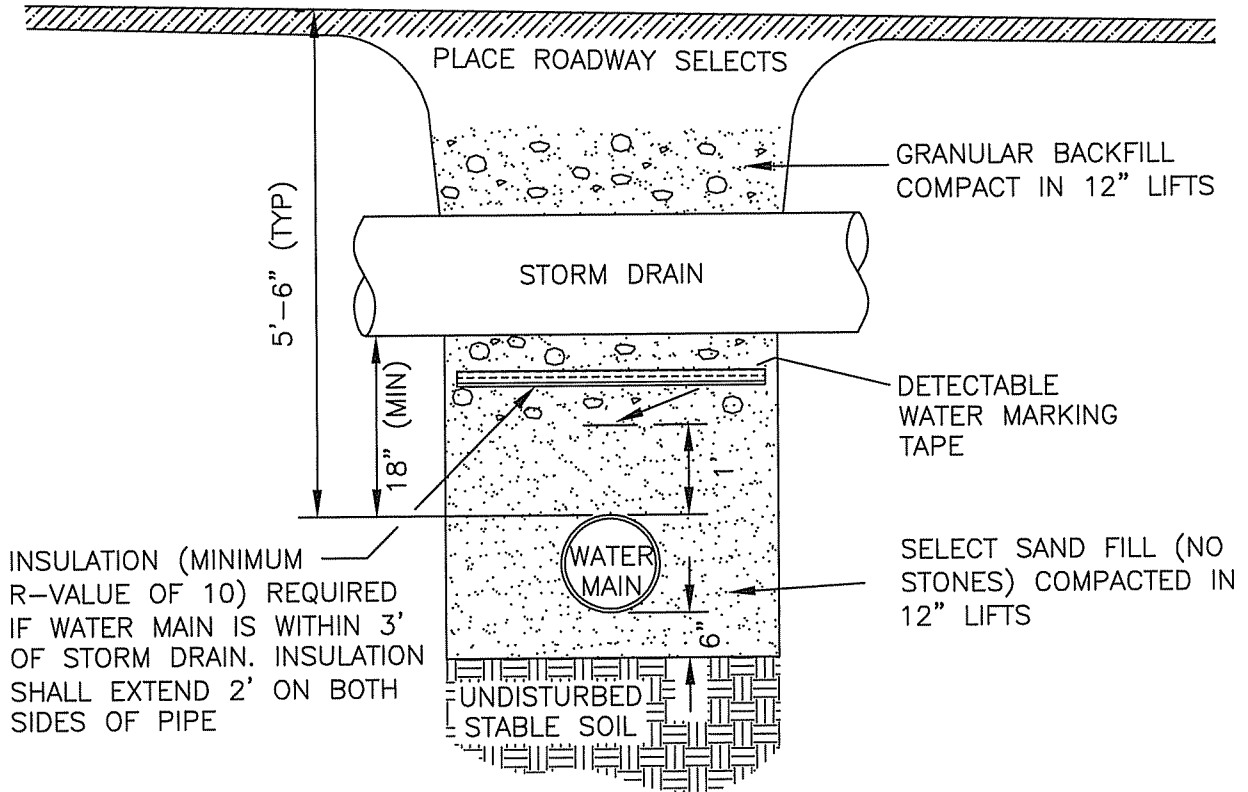
UNDERGROUND CONDUIT INSTALLATIONS SHALL BE COORDINATED WITH ALL LOCAL UTILITIES INCLUDING ELECTRIC, TELEPHONE, GAS, CABLE, STEAM, AND CITY OF CONCORD FIRE ALARM/SIGNAL AND ENGINEERING SERVICES DIVISIONS.

CONDUIT CROSSINGS SHALL BE SWEEPS AT RIGHT ANGLES TO THE STREET. 90° BENDS ARE NOT ACCEPTABLE

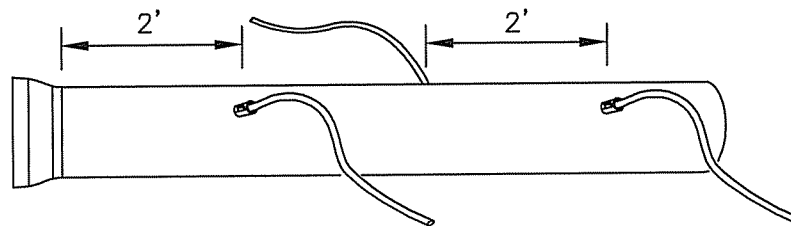
PROPOSED CONDUITS WITHIN PAVED SECTIONS OF STREETS SHALL BE RIGID METAL OR SCH 80 PVC CONDUIT. WHEN THE PROPER DEPTH CANNOT BE ACHIEVED, SCH 40 PVC CONDUIT ENCASED IN CONCRETE SHALL BE USED.

| NO. | REVISION | DATE | City of Concord Engineering Services Division | SECTION: SITE/STREET | |
|--------------|----------|------|---|----------------------|--|
| - | - | - | TYPICAL UTILITY CONDUIT INSTALLATION | DRAWING NO. U-1 | |
| - | - | - | | DATE: 12/08 | |
| - | - | - | | PAGE: 1 | |
| APPROVED BY: | | | | | |

PLACE ASPHALT BINDER ALONG
WITH FINAL WEARING COURSE AS
DIRECTED BY THE CITY ENGINEER

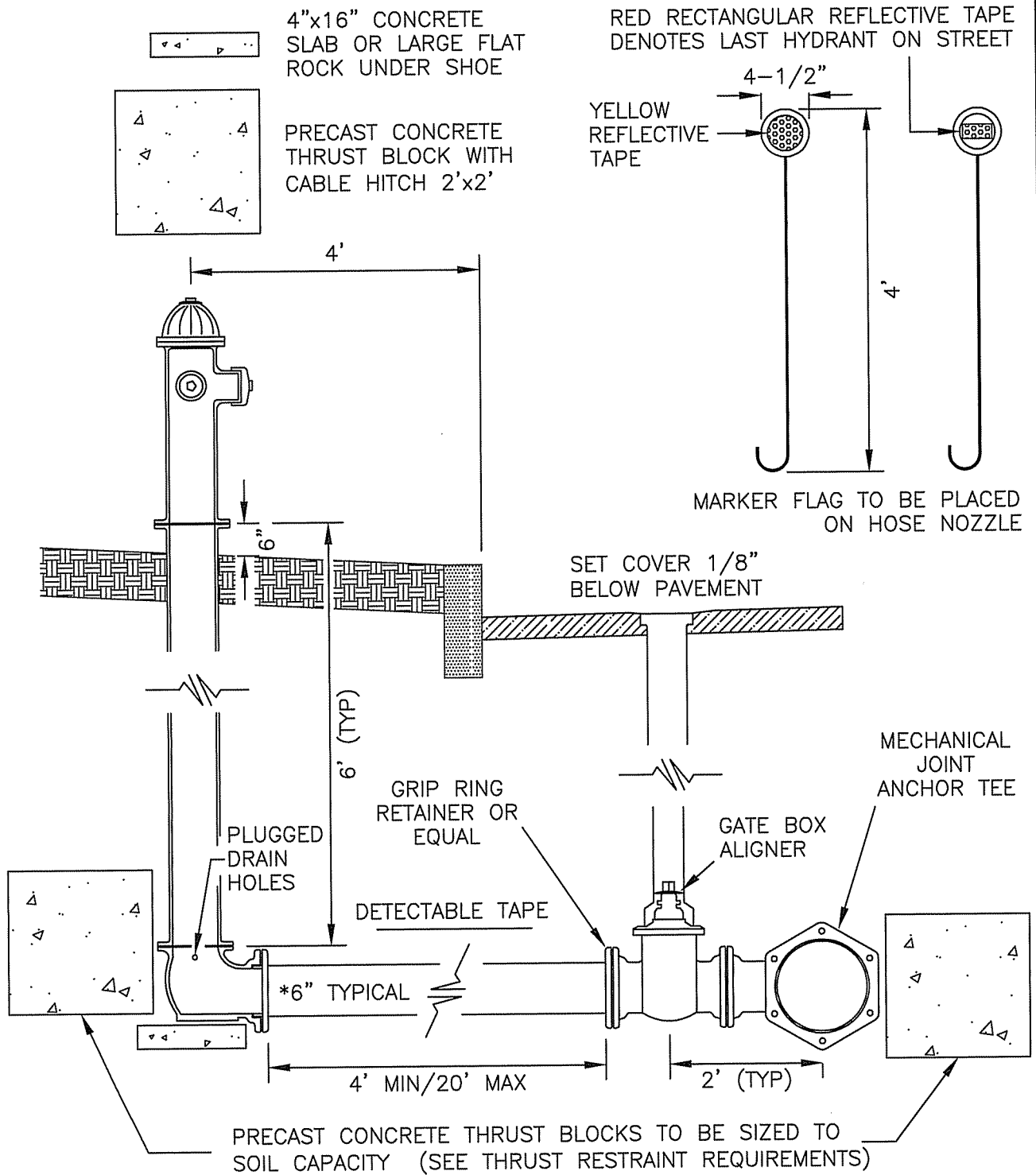


24" MINIMUM SEPARATION BETWEEN SERVICE
TAPS OR FROM A BELL



NOTE: ALL SERVICES SHALL HAVE DETECTABLE TAPE PLACED 12"
OVER THE TOP OF THE SERVICE

| NO. | REVISION | DATE | City of Concord Engineering Services Division | SECTION: | WATER |
|--------------|----------|------|--|----------------|-------|
| - | - | - | WATER SERVICE AND MAIN INSTALLATION | DRAWING NO. | W-1 |
| - | - | - | | DATE: | 12/08 |
| - | - | - | | PAGE: | 1 |
| APPROVED BY: | | | | | |

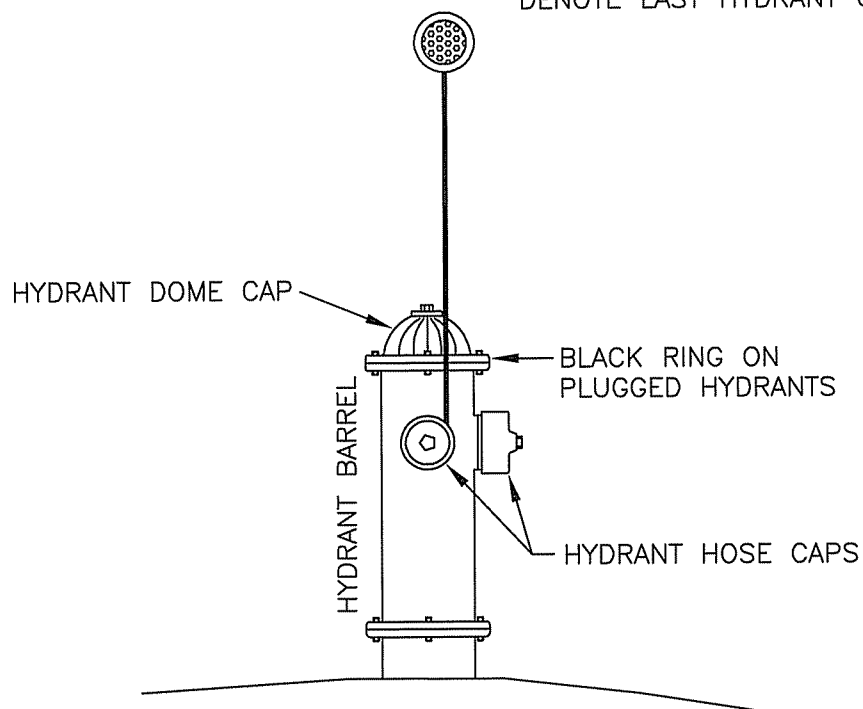


* NOTE: 8" DIAMETER PIPE REQUIRED SHOULD HYDRANT BE MORE THAN 20 FT FROM WATER MAIN.

| NO. | REVISION | DATE | City of Concord Engineering Services Division | SECTION: | WATER |
|--------------|----------|------|---|-------------|-------|
| - | - | - | FIRE HYDRANT | DRAWING NO. | W-2 |
| - | - | - | | DATE: | 12/08 |
| - | - | - | | PAGE: | 1 |
| APPROVED BY: | | | | | |

HYDRANT MARKER FLAG COLORS

YELLOW REFLECTIVE TAPE
RED RECTANGULAR REFLECTIVE TAPE TO
DENOTE LAST HYDRANT ON STREET



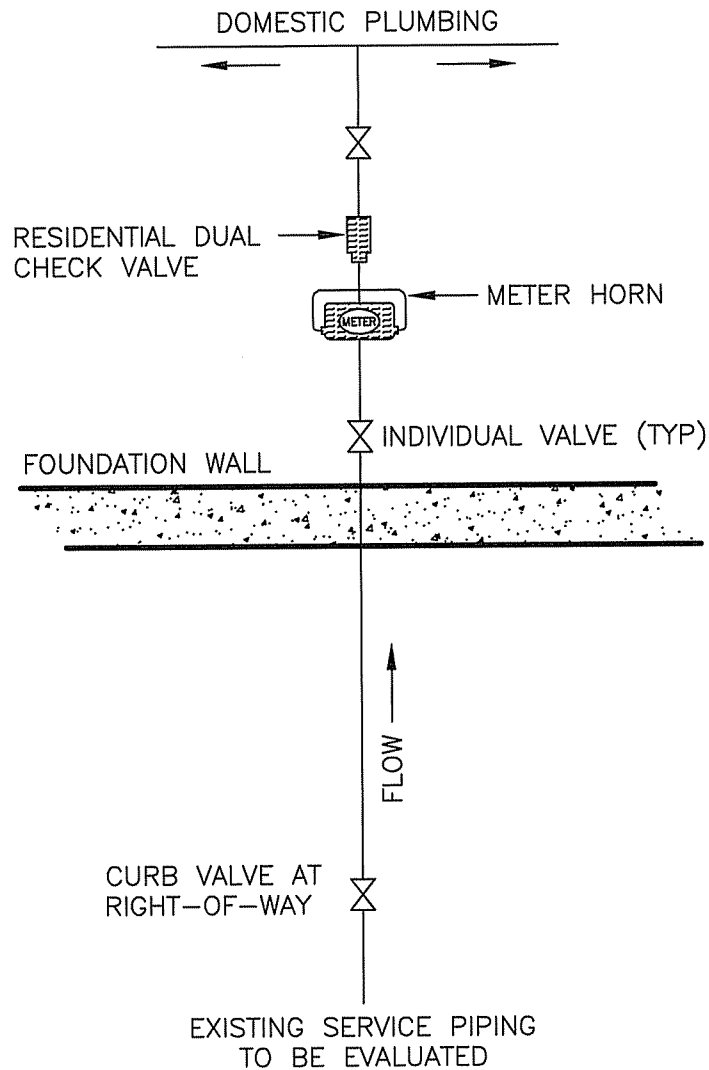
HYDRANT PAINTING

| SERVICE PRESSURE | HYDRANT BARREL | HYDRANT DOME CAP | HYDRANT HOSE CAPS |
|-----------------------------|----------------|------------------|-------------------|
| HIGH PRESSURE: | | | |
| PUBLIC | OSHA ORANGE | CHROME ALUMINUM | OSHA ORANGE |
| PRIVATE | GLOSS YELLOW | CHROME ALUMINUM | GLOSS YELLOW |
| EXTRA HIGH PRESSURE: | | | |
| PUBLIC | OSHA ORANGE | CHROME ALUMINUM | CHROME ALUMINUM |
| PRIVATE | GLOSS YELLOW | CHROME ALUMINUM | CHROME ALUMINUM |
| NON-POTABLE WATER SUPPLIES: | | | |
| PUBLIC | OSHA ORANGE | GLOSS GREEN | OSHA ORANGE |
| PRIVATE | GLOSS YELLOW | GLOSS YELLOW | GLOSS GREEN |

NOTES:

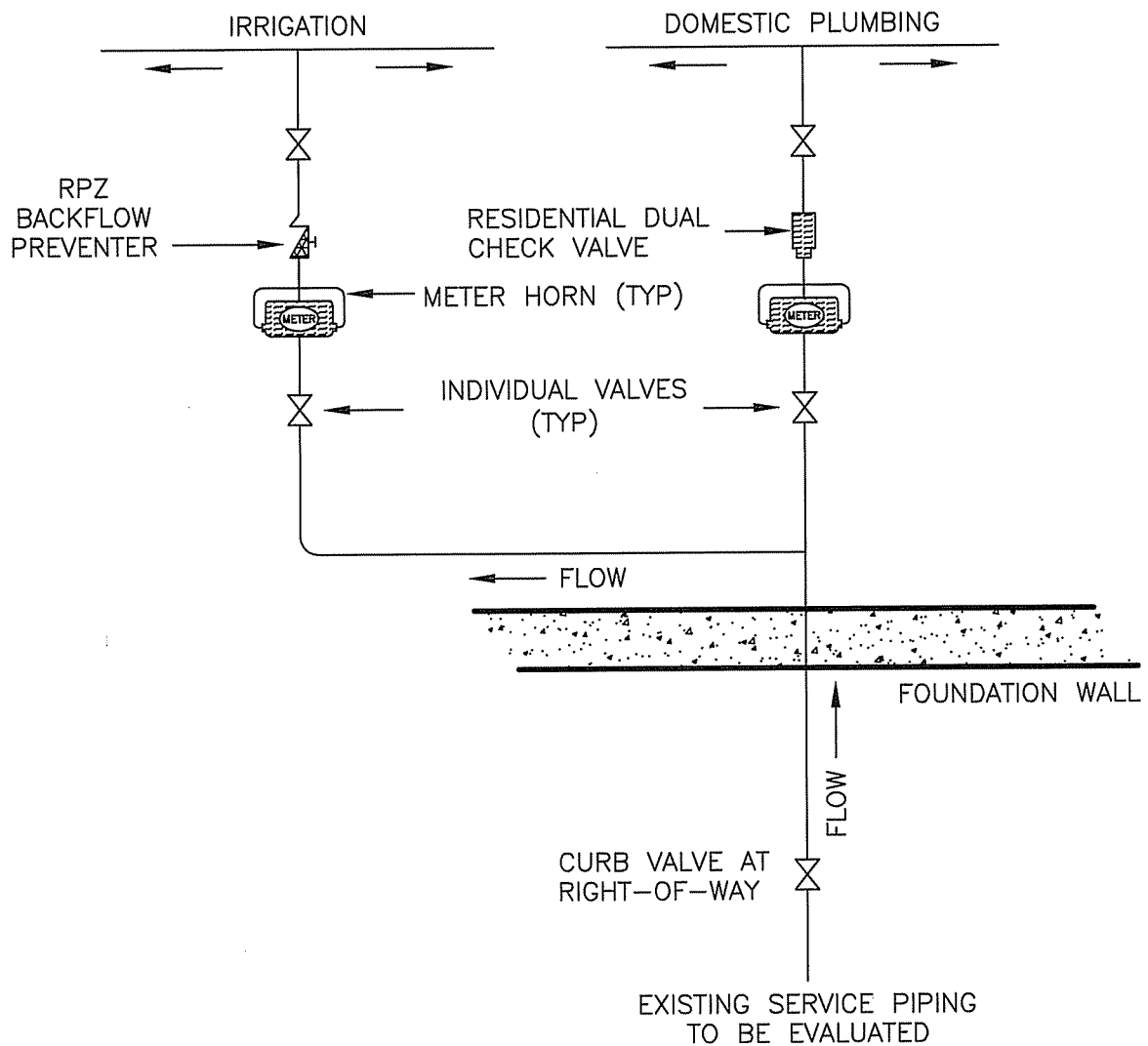
1. THE CONTRACTOR/DEVELOPER SHALL BE RESPONSIBLE FOR THE PAINTING OF THE HYDRANTS.
2. AT THE CONTRACTORS OPTION, IF REQUESTED, GENERAL SERVICES WILL PAINT THE HYDRANTS AT A NOMINAL CHARGE

| NO. | REVISION | DATE | City of Concord Engineering Services Division | SECTION: | WATER |
|--------------|----------|------|--|-------------|-------|
| - | - | - | HYDRANT PAINTING & MARKER FLAGS | DRAWING NO. | W-3 |
| - | - | - | | DATE: | 12/08 |
| - | - | - | | PAGE: | 1 |
| APPROVED BY: | | | | | |



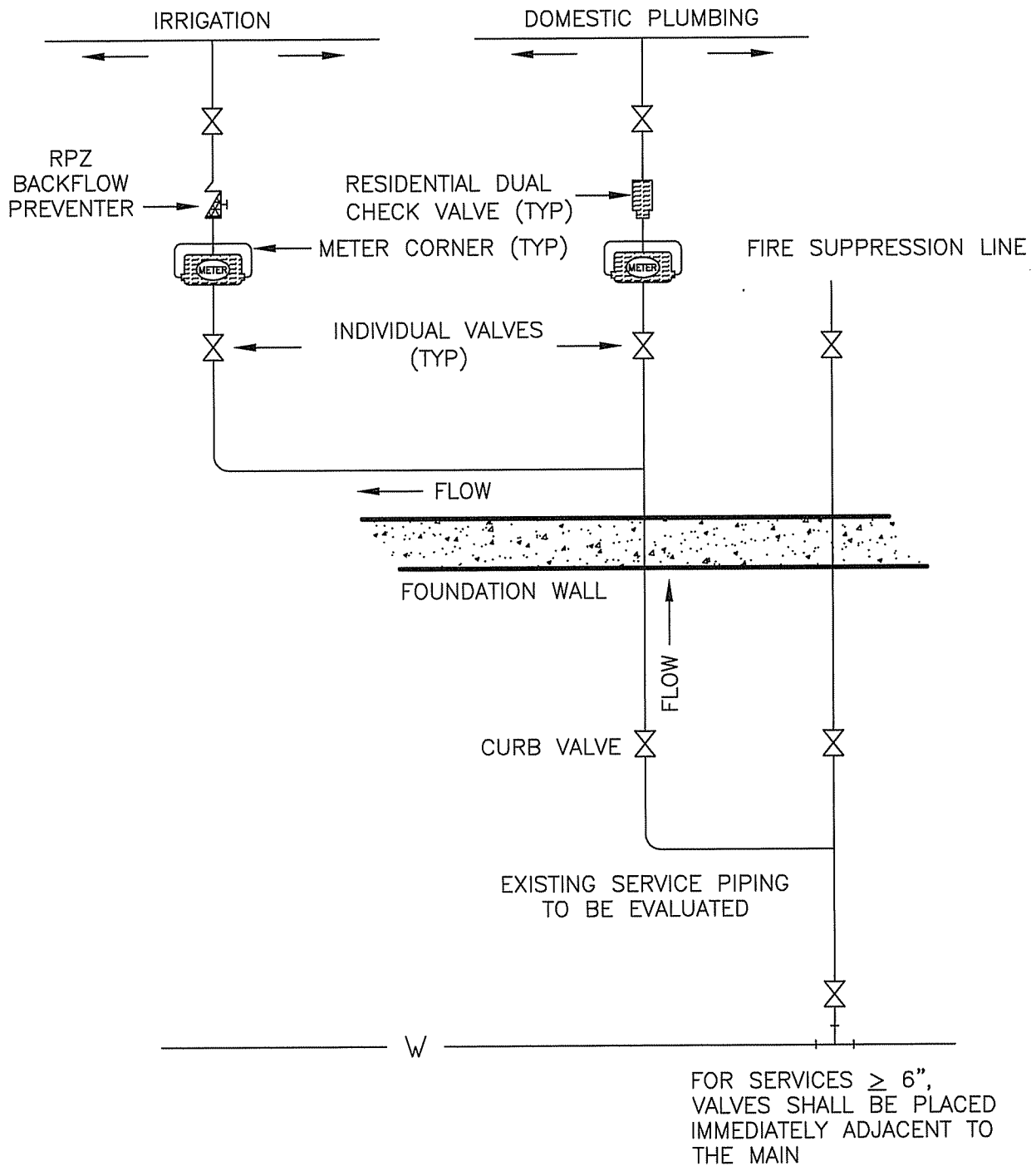
NOTE: ALL METERS SUPPLIED BY CITY OF
CONCORD GENERAL SERVICES DEPARTMENT

| NO. | REVISION | DATE | City of Concord Engineering Services Division | SECTION: | WATER |
|--------------|----------|------|---|-------------|-------|
| - | - | - | SINGLE FAMILY METER INSTALLATION | DRAWING NO. | W-4 |
| - | - | - | | DATE: | 12/08 |
| - | - | - | | PAGE: | 1 |
| APPROVED BY: | | | | | |



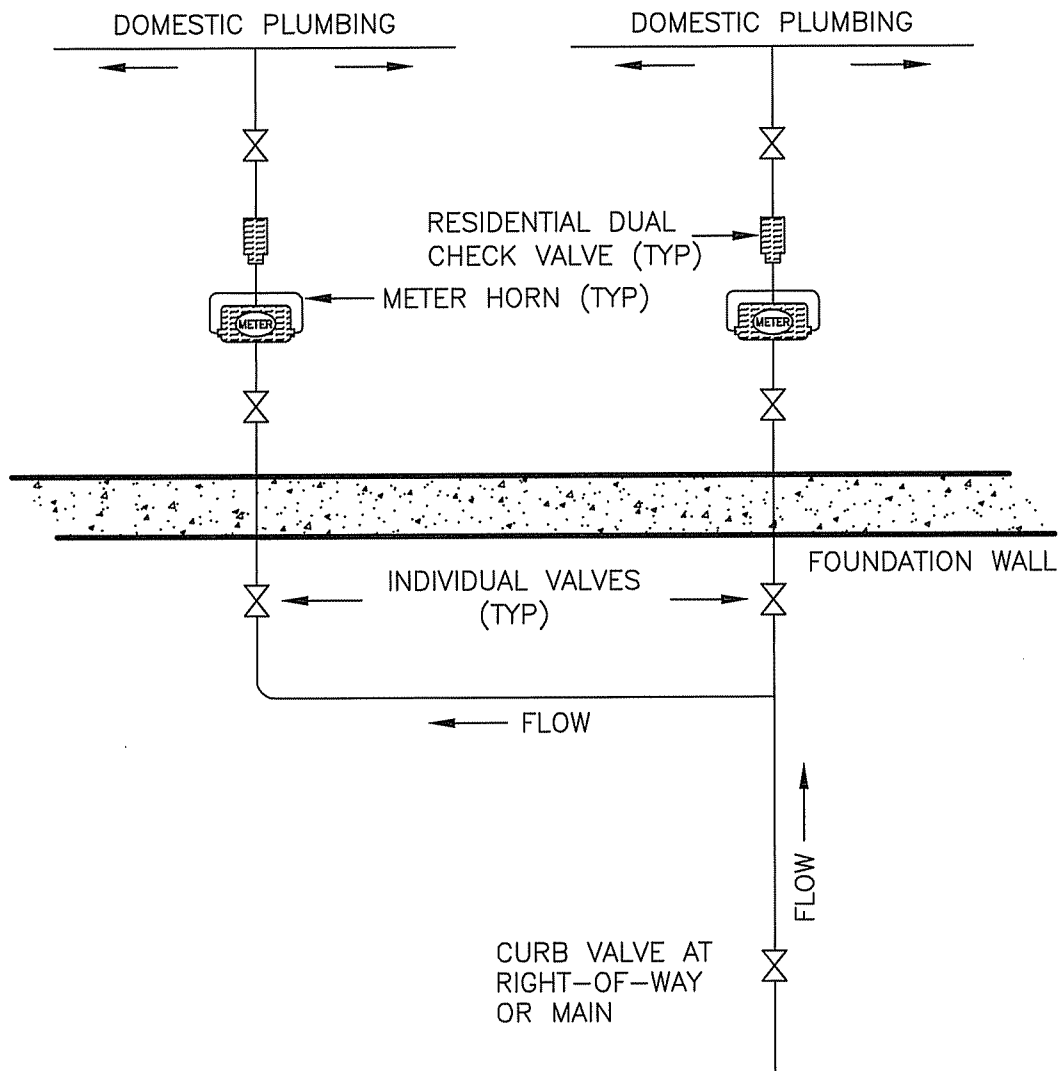
NOTE: ALL METERS SUPPLIED BY CITY OF CONCORD GENERAL SERVICES DEPARTMENT

| NO. | REVISION | DATE | City of Concord Engineering Services Division | SECTION: | WATER |
|--------------|----------|------|--|-------------|-------|
| - | - | - | RESIDENTIAL METER INSTALLATION WITH IRRIGATION | DRAWING NO. | W-5 |
| - | - | - | | DATE: | 12/08 |
| - | - | - | | PAGE: | 1 |
| APPROVED BY: | | | | | |



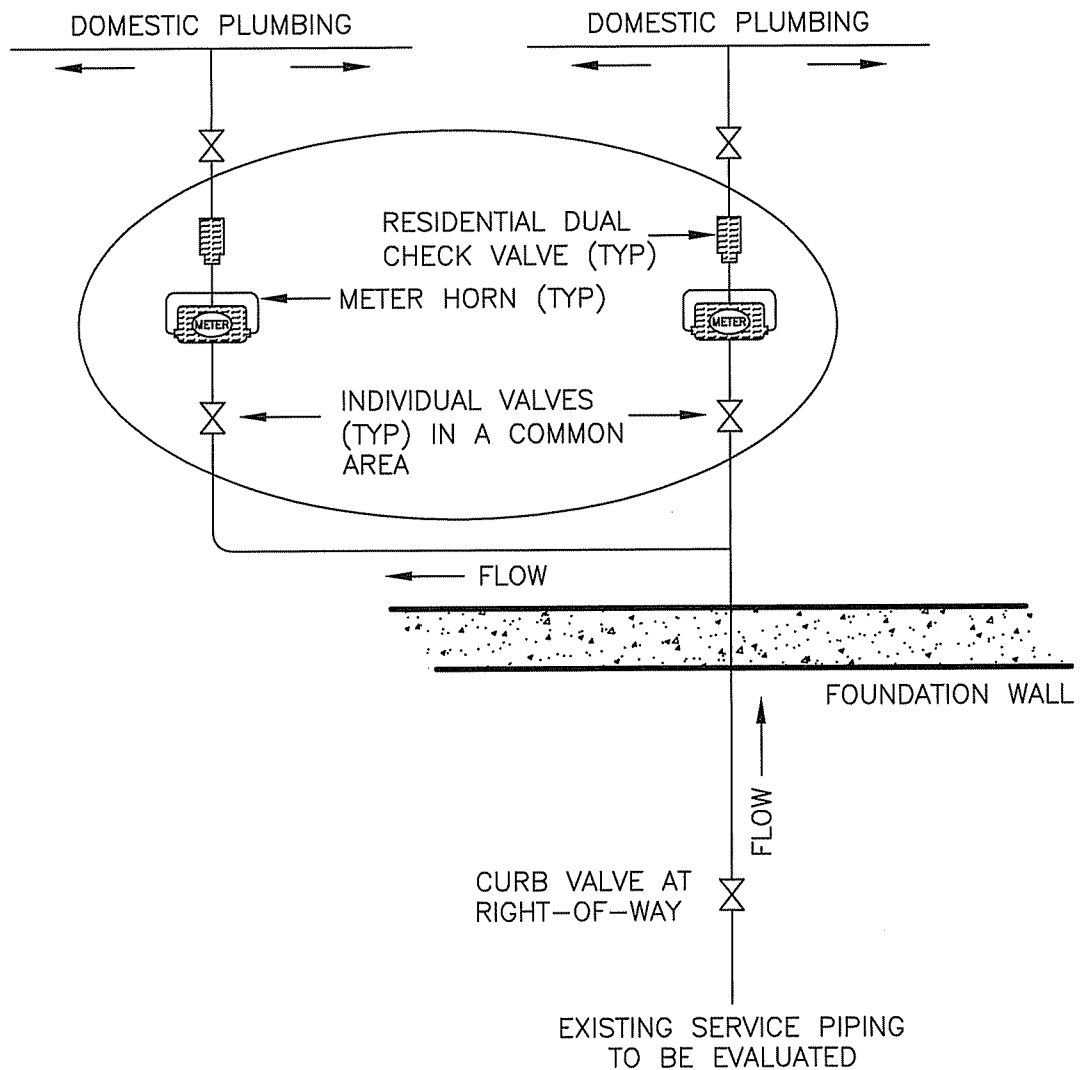
NOTE: ALL METERS SUPPLIED BY CITY OF CONCORD GENERAL SERVICES DEPARTMENT

| NO. | REVISION | DATE | City of Concord Engineering Services Division | SECTION: | WATER |
|--------------|----------|------|--|-------------|-------|
| - | - | - | METER INSTALLATION WITH IRRIGATION AND FIRE SUPPRESSION | DRAWING NO. | W-6 |
| - | - | - | | DATE: | 12/08 |
| - | - | - | | PAGE: | 1 |
| APPROVED BY: | | | | | |



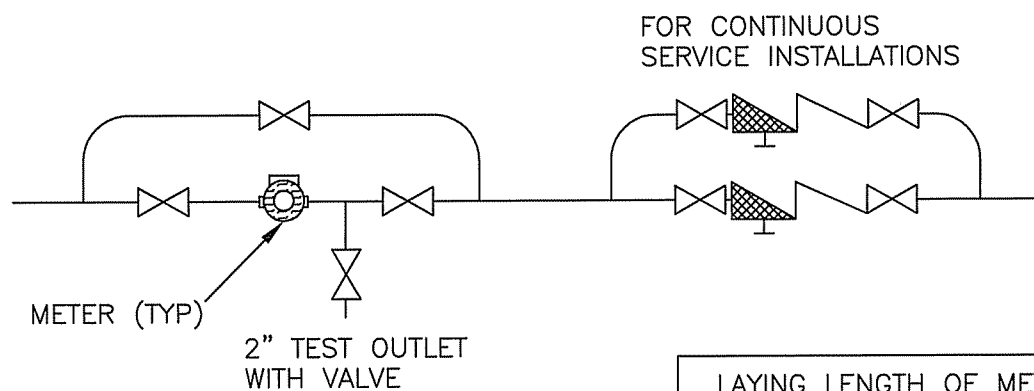
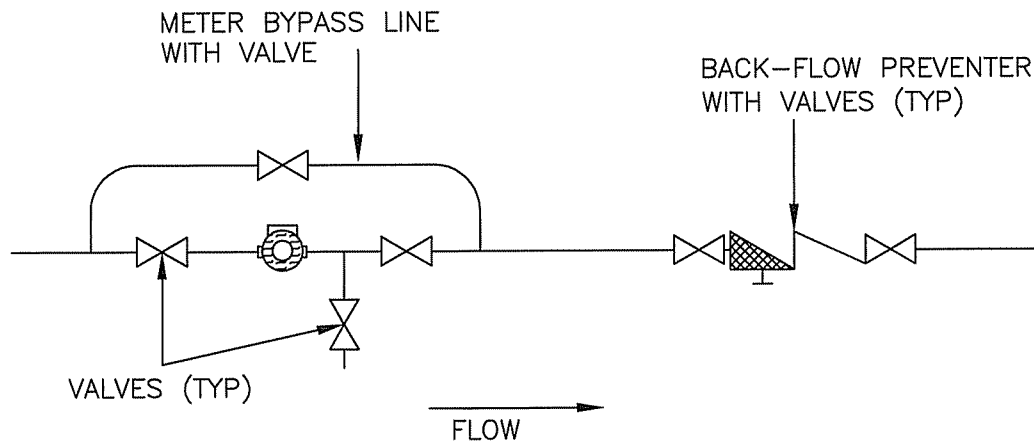
NOTE: ALL METERS SUPPLIED BY CITY OF
CONCORD GENERAL SERVICES DEPARTMENT

| NO. | REVISION | DATE | City of Concord Engineering Services Division | SECTION: WATER | |
|--------------|----------|------|--|----------------|---------|
| - | - | - | NEW CONDOMINIUM DUAL RESIDENTIAL METER INSTALLATION | DRAWING NO. | W-7 |
| - | - | - | | DATE: 12/08 | PAGE: 1 |
| - | - | - | | | |
| APPROVED BY: | | | | | |



NOTE: ALL METERS SUPPLIED BY CITY OF
CONCORD GENERAL SERVICES DEPARTMENT

| NO. | REVISION | DATE | City of Concord Engineering Services Division | SECTION: | WATER |
|--------------|----------|------|---|-------------|-------|
| - | - | - | CONDO CONVERSION DUAL RESIDENTIAL METER INSTALLATION | DRAWING NO. | W-8 |
| - | - | - | | DATE: | 12/08 |
| - | - | - | | PAGE: | 1 |
| APPROVED BY: | | | | | |



LAYING LENGTH OF METERS:

| | | |
|-----------------------------------|---|--------------------|
| $\frac{5}{8}$ " x $\frac{3}{4}$ " | = | 7 $\frac{1}{2}$ " |
| 1" x _____ | = | 10 $\frac{3}{4}$ " |
| 1 $\frac{1}{2}$ " x _____ | = | 13" |
| 2" x _____ | = | 17" |
| 3" TURBO x _____ | = | 16" |
| TURBO x _____ | = | 14" |

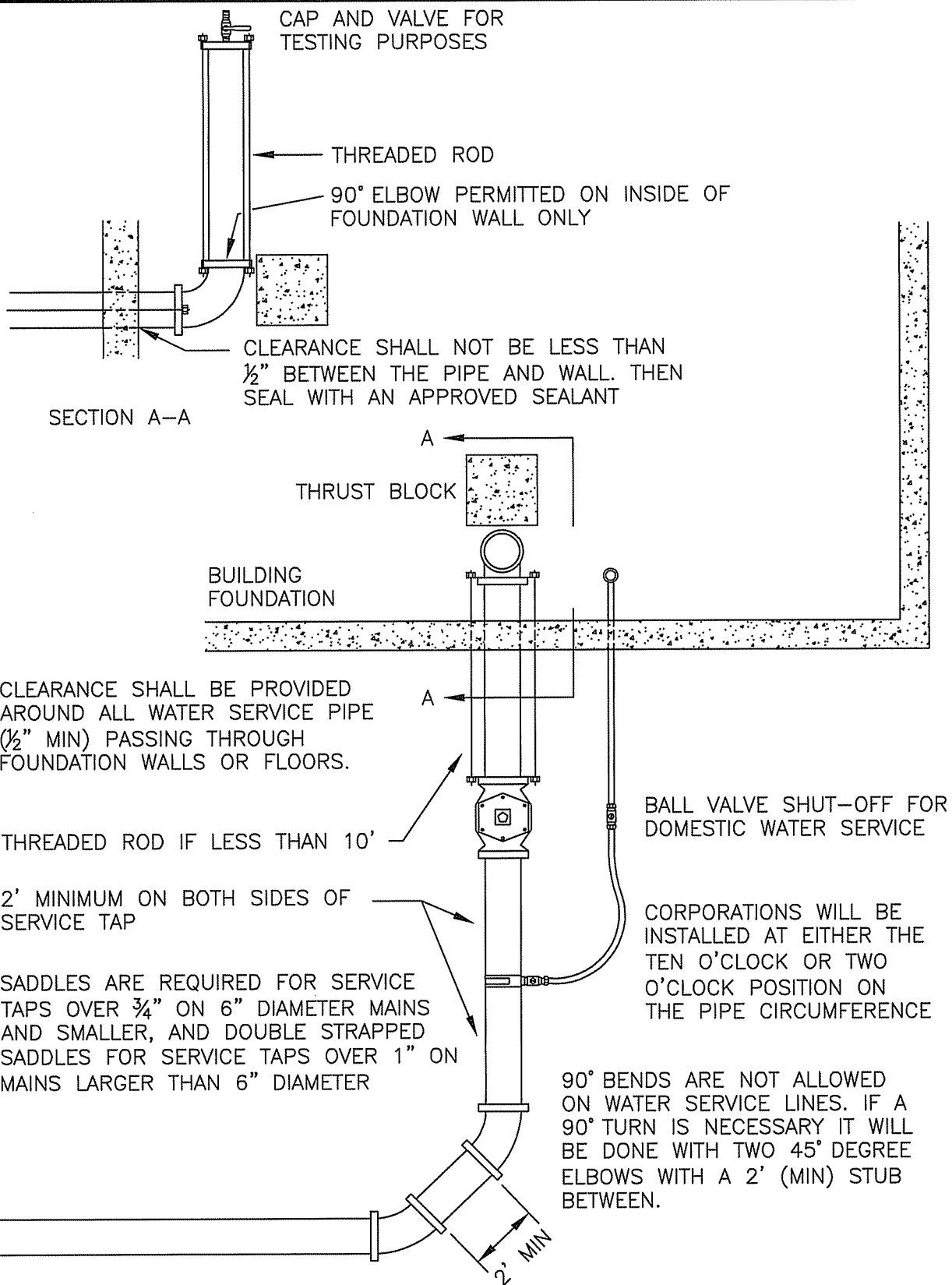
ON ALL WATER SERVICES WITH A METER SIZE OF 1 $\frac{1}{2}$ " OR LARGER, A BYPASS LINE WITH A 2" TEST OUTLET IS REQUIRED.

AN IDLER OR METER SPACER WITH GASKETS AND BOLTS CAN BE OBTAINED FROM THE CITY UTILITY BILLING OFFICE TO ASSIST WITH METER PLUMBING.

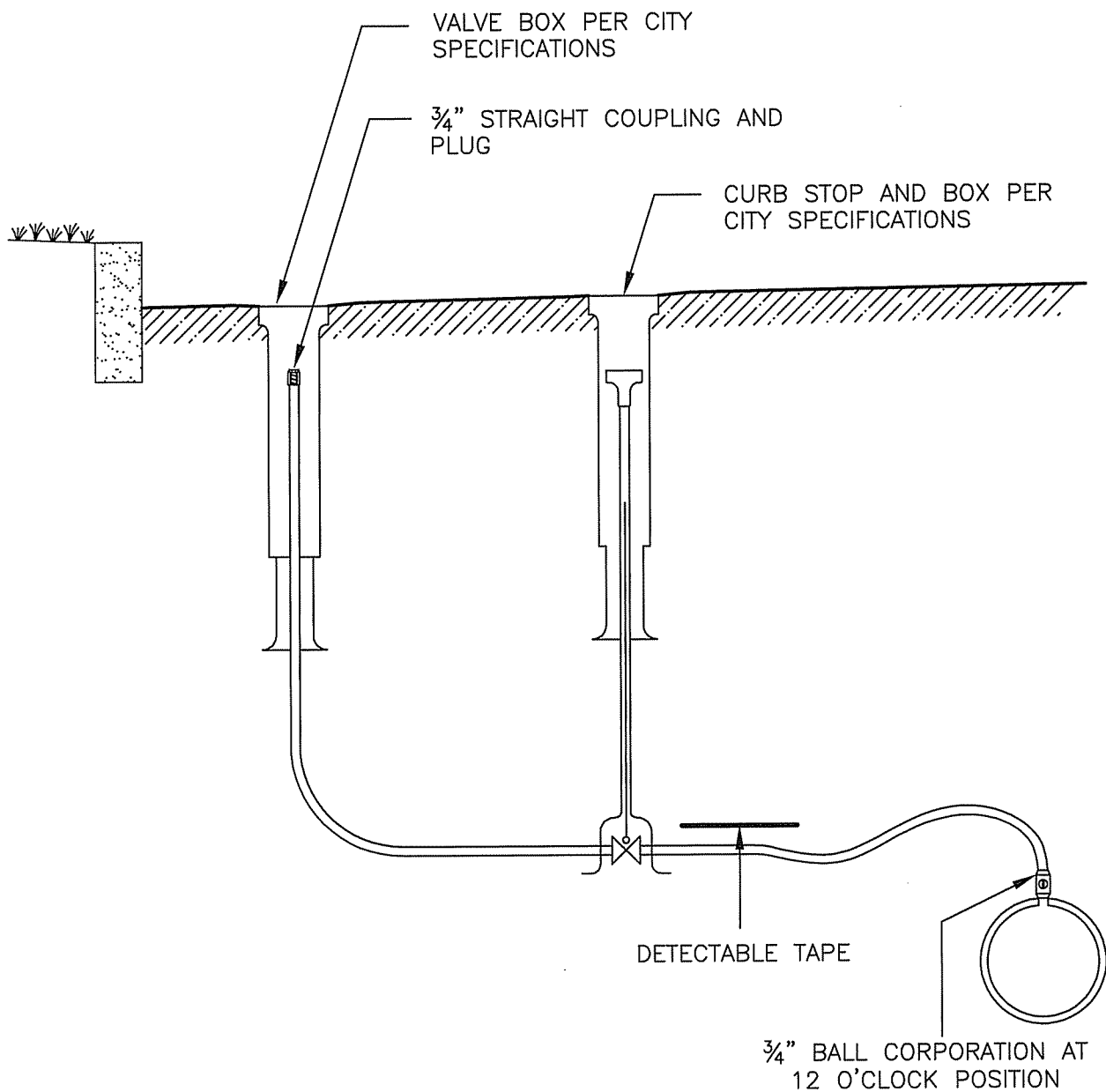
NO OBSTRUCTIONS ARE ALLOWED:

| | |
|------------------------------|-------|
| BEFORE THE METER | 5 x D |
| BEFORE A METER WITH STRAINER | 3 x D |
| AFTER THE METER | 2 x D |
| WHERE D = PIPE DIAMTER | |

| NO. | REVISION | DATE | City of Concord Engineering Services Division | SECTION: | WATER |
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| - | - | - | INSTALLATION OF WATER METERS | DRAWING NO. | W-9 |
| - | - | - | | DATE: | 12/08 |
| - | - | - | | PAGE: | 1 |
| APPROVED BY: | | | | | |



| NO. | REVISION | DATE | City of Concord Engineering Services Division | SECTION: WATER | |
|--------------|----------|------|---|------------------|--|
| - | - | - | WATER SERVICE THROUGH FOUNDATION | DRAWING NO. W-10 | |
| - | - | - | | DATE: 12/08 | |
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NOTE: ALL HARDWARE SHALL BE REMOVED AND A BRASS PLUG INSERTED INTO PIPE

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|--------------|----------|------|--|----------------|-------|
| — | — | — | AIR RELEASE VALVE (FOR TESTING PURPOSES ONLY) | DRAWING NO. | W—11 |
| — | — | — | | DATE: | 12/08 |
| — | — | — | | PAGE: | 1 |
| APPROVED BY: | | | | | |